

TO THE LEFT, TO THE RIGHT, AND MUCH IN-BETWEEN

verum focus is verum, not focus

Focus Constructions
in Hausa

Subject relative clauses in Dagbani

Not only „only“

but „too“ too

Semantic Coordination without Syntactic Coordinators
A Cross-Linguistic View of Focus Realizations

A
FESTSCHRIFT
FOR
KATHARINA
HARTMANN

The Dark Side of Wh-Movement

**To the left,
to the right,
and much in between:
*A Festschrift
for Katharina Hartmann***

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Contents

Preface

A. Himmelreich, D. Hole, J. Mursell

v

Part I: Syntax and morphosyntax

D is not a syntactic primitive

E.O. Aboh

3

Resumption and long-distance wh-movement in Likpakpaanl

S.O. Acheampong

27

More than two infinitives in Frisian

F. Bergsma

43

How dost thou and thy master agree?:

(Un)resolved agreement with conjoined subjects in German

E. Fuß

55

Agreement patterns of coordination

A. Himmelreich, M. Jeckel & J. Mursell

71

Direct modifiers in non-free phrases in Japanese

V. Köhlich

89

Two types of prosodic diversity masking Universal Grammar, exemplified in Igbo

V. Manfredi

107

Suprasegmentals in negation: A cross-modal perspective

R. Pfau

127

Inflectional verb tone in Buli

A. Schwarz

139

Non-illusory linear effect in Closest Conjunct Agreement

Z. Shen

151

Asymmetries in isiZulu possessor raising constructions

J. Zeller

171

Part 2: Information structure

Topic and focus asymmetries in Yorùbá

D. Aremu

185

Relative clause extraposition and information structure <i>M. Bader</i>	205
A focus grammar of Aja <i>I. Fiedler</i>	217
Bite one's thumb and turn one's nose: A minimal pair of focus assignment in " <i>Romeo and Juliet</i> " <i>M. Krifka</i>	229
Topicalization and prosodic phrasing in Akan <i>F. Kügler</i>	241
Verum focus is not verum <i>H. Lohnstein</i>	259
From information structure to argument structure <i>E. Onea</i>	275
Part 3: Semantics and discourse	
Ist die denn schon 60?! An essay on <i>denn</i> (and <i>auch</i>) in questions <i>D. Büring</i>	291
Ideophones across modalities? <i>C. Ebert & M. Steinbach</i>	305
Phrasal compounds are quotational compounds <i>D. Gutzmann & K. Turgay</i>	319
Against <i>wohl</i> in ForceP <i>D. Hole</i>	333
Che cazzo di articolo di merda! <i>G. Vanden Wyngaerd & E. Cavigrani</i>	337
Katharina ist eben die beste: On conclusive discourse particles in Wolof and German <i>M. Zimmermann</i>	351

Preface

1 Editing a *Festschrift* for Katharina

The idea to this *Festschrift* was born on May 10th, 2022, 608 days out from the occasion for it – Katharina’s 60th birthday. Countless secret emails were exchanged since then between us, the editors, and the many dozens of linguists we invited, whose paths had crossed with Katharina’s decades-long journey at some point. Katharina has always been a role-model in her research areas syntax, information structure and West-African linguistics, deeply entrenched in the respective research communities, and in high demand as a co-author. For way over 400 days, all of the invited contributors were brooding over ideas for topics or eagerly bringing their latest research in shape for a paper.

A year later, the first contributions arrived. Slowly, but steadily, we could cross the most reliable and overly punctual people off our list. The suspension to hand over this book to Katharina was hard on us, but we had to be patient and wait many more months while all the contributors set time apart from their busy schedules to express their gratitude to their dear colleague in form of an article.

Then suddenly, with the last paper formatted and the table of contents written, the *Festschrift* was finally assembled. Now, as we are writing this preface on December 12th, 2023 – only 27 days out, we would like to end this editing process with the following: We are immensely grateful for all the work by the contributors, who eventually made this collection possible, and we are immensely grateful for having Katharina in our lives, for being who she is, for inspiring and motivating and advising, and for unknowingly transferring to us some of her relentless optimism that keeps us going. She is thorough and elegant as a researcher, rigorous and warm as a colleague and boss, and dear to us as a friend. Here’s to you, Katharina!

2 The contributions

The overall classification of contributions to Katharina’s *Festschrift* came to us quite naturally. They fall within one of the large areas “Syntax and morphosyntax,” “Information Structure,” or “Discourse and semantics,” where all of these fields constitute domains to which Katharina has contributed significantly.

2.1 Syntax and morphosyntax

Enoch O. Aboh suitably sets the stage for the Syntax and morphosyntax section with his article ‘D is not a syntactic primitive,’ a title that somewhat understates the scope and ambition of his contribution. Taking the standard wisdom of article systems of Germanic and Romance as a point of departure, and contrasting this with the situation as found in Gungbe (Kwa), he first arrives at a more abstract left-periphery (LP) notion of DPs unifying the European and the Gungbe case. He then goes on to extend this LP notion to the verbal/CP domain. A Wiltschko-like overall structure for DP and CP is arrived at, a structure that abstracts away from the pronominal (European) or the verbal (African) nature of LP complementation.

In his contribution ‘Resumption and long-distance wh-movement in Likpakpaanl’, **Samuel O. Acheampong** focuses on differences between subject and object wh-movement in Likpakpaanl, a Mabia language. After presenting the basic pattern, he extends the discussion of the asymmetries to long-distance wh-movement, showing how both differ with respect to the element in the base position, with resumptives for long-distance subject extraction, and gaps for long-distance object extraction. Despite this difference, it is shown that both long-distance dependencies, for subjects as well as for objects, are based on movement, since both are sensitive to islands.

The article ‘More than two infinitives in Frisian’ by **Fenna Bergsma** revisits a classical topic of research into Frisian: infinitives. She shows that the two morphologically distinct forms of the Frisian infinitive, if looked at distribution-wise, require the assumption of three different categories. Taking the *te-INF* ‘*to-INF*’ into account on top of that, Bergsma arrives at a set of four different forms of the infinitive.

In ‘How dost thou and thy master agree?’, **Eric Fuß** tackles the question of ϕ -feature resolution in finite verbs with conjoined ϕ -divergent subject DPs in German. He does so from a diachronic perspective, noting a drift from single conjunct agreement (agreement doing justice to only one conjunct; SCA) to resolution (agreement somehow calculating a plural “best” form). Both SCA and resolution are analyzed as post-syntactic repair strategies enabling vocabulary insertion in the sense of Distributed Morphology.

Anke Himmelreich, Melissa Jeckel and Johannes Mursell report on their medium-scale crosslinguistic survey of ‘Agreement patterns of coordination’, thereby contributing to a strain of Katharina’s research that was also the topic of the immediately preceding text. Comparing 27 languages from seven language families, the authors concentrate on the factors that favor Resolved Agreement vs. Closest Coordinand Agreement. It turns out that disjunctions are correlated with Closest Coordinand Agreement, whereas conjunctions are more likely to trigger Resolved Agreement. Moreover, SV order tendentially goes along with

Resolved Agreement, and VS order favors Closest Coordinand Agreement.

Leaving the topic of coordination for a while, **Viktor Köhlich**'s paper on 'Direct modifiers in non-free phrases in Japanese' takes us into the rabbit hole of idiomatic adjective-noun phrases in Japanese, which are comparable to *white lie* in English. Based on these constructions, Köhlich shows that direct modifiers exist in Japanese, something believed to be false in previous work. The paper demonstrates the absence of a predicative use – a major diagnostic for indirect modification – for these adjectives. Further, these modifiers have to appear close to the stem, which leads Köhlich to assume that they are inside the low domain for direct modification in the DP.

The high tone of **Victor Manfredi**'s 'Prosodic diversity masking Universal Grammar' comes with a broody message. The message of his topic, the status of lexical and grammatical (African) tone in Universal Grammar, is clear: there exists the strong possibility that the – call it colonialist – commonly accepted view of tone in African languages is just a hyper-theoretical, often circular, Chimera that should make place for a new tonology which reconciles intonation and tones at a higher level.

What **Roland Pfau** does in his contribution 'Suprasegmentals in negation: a cross-modal perspective' is paying tribute to a time when his and Katharina's research interests in suprasegmentally expressed negation overlapped by coincidence. Roland studied this phenomenon in German Sign Language (DGS), and Katharina did the same for Hausa. The fact that suprasegmentality is a common way of expressing negation in DGS (head-shake) and Hausa (tonal changes) constitutes a stunning cross-linguistic parallel.

Unaffected by the pensive stance of Manfredi's text, 'Inflectional verb tone in Buli' by **Anne Schwarz** lays out the intricate system of grammatical tone in this Mabia language. With great precision, she shows that the marked imperfective varies in its tone much less than the unmarked perfective, which can show different tonal patterns depending on various factors like mood or its status as dependent verb. In addition to this detailed description of the tonal patterns, the paper makes a strong argument for the assumption that tone plays a major role in the grammar of at least some Mabia languages.

Zheng Shen observes a 'Non-illusory linear effect in Closest Conjunct Agreement,' thereby concluding the trilogy of papers dealing with conjoined subjects and their agreement patterns in this book. Thoroughly reviewing configurational vs. linear-distance approaches, he identifies a new argument for the existence of true linearity effects in the context of right-node raising.

In 'Asymmetries in isiZulu possessor raising constructions,' **Jochen Zeller** tackles the puzzling fact that, in his language of study, canonical ditransitive structures allow passivizations and either recipient or theme subjects in them; in possessor raising structures, however, only possessors can become subjects

in passives, but not the possessum phrases. Zeller contrasts two analytical options one may wish to apply to account for this contrast: the *Generalized Proper Binding Condition* and the Mobility Feature approach. The author's sympathies lie with the second solution, but the conclusions nevertheless remain ultimately agnostic.

2.2 Information structure

Daniel Aremu analyzes ‘Topic and focus asymmetries in Yorùbà’ through a classical cartographic lens. Topics, contrastive topics and subject foci are base-generated in the left periphery of Clitic-Left Dislocation constructions (with pronominal resumption in the canonical argument position). Non-subject foci move to their left-peripheral position, with no resumption occurring.

Markus Bader tackles an issue in an empirical domain that Katharina is well known for: ‘Relative clause extraposition and information structure.’ His constrained production experiment makes use of fragments of target sentences that the participants had to group into a sentence. One fragment was always a relative clause, and another fragment the definite-marked head noun. The variable under analysis was whether the DP (with its relative clause as a fragment presented as such to the participants) was focal or topical. It turns out that focal relative clauses extrapose more frequently than topical ones. The effect is surprisingly small, though. Bader considers the short extraposition distance of the test items to contribute to the smallness of the effect. An issue left for future research is why overall extraposition rates differ greatly across the participants in the experiment. The modality (spoken vs. written) may be a relevant factor here.

‘A focus grammar of Aja’ (Gbe continuum of the Kwa languages) is what **Ines Fiedler** contributes. Aja presents the researcher with a multitude of information structural devices. First there’s the option to not mark anything at all and leave the utterance in its canonical word order. This allows for focus on anything, except subjects. Movement to the left periphery is a syntactic way to mark focus. The morphological means of focus marking include a particle that follows the preposed focus (portion), where a second particle allows the focus marking of predicates/verbs. Notions such as ‘also’ and ‘only’ come with their own post-focal morphology, not much different from other languages.

Manfred Krifka’s study is about a Shakespearean minimal pair from “Romeo and Juliet”: ‘Bite one’s thumb and turn one’s nose: a minimal pair of focus assignment in *Romeo and Juliet*.’ The servants of the Capulets engage in provoking the servants of the antagonistic Montagues by making an obscene gesture, and the ensuing verbal fight centers around the question of whether this gesture was directed towards the Montague servants or not. The scene involves

a string-identical minimal pair, and Krifka shows in a variety of ways that the information structure of both strings is different. He then goes on to find translations of this minimal pair in German, Norwegian, Spanish, Italian, Czech, Hungarian, Japanese, Vietnamese and Turkish. For each of the languages he discusses the various information-structural devices that these languages have at their disposal to convey the contrast, which in English, is just intonational.

‘Topicalization and prosodic phrasing in Akan’ by **Frank Kügler** investigates the prosodic phrasing of topics vis-à-vis their comments in this Kwa language. The author is able to show that topics constitute their own prosodic phrases in left-dislocated topicalization structures with (proclitic) pronominal resumption. They are separated from their comments by significant pauses of more than 500 ms, and downstep patterns are interrupted at the right topic boundary. However, pitch reset as observed with embedded clause intonation phrases does not occur in sufficient strength after topics. This leads the author to speculate that the prosodic unit characterizing topics in Akan is not an intonation phrase, but a mere phonological phrase.

Whether ‘Verum focus is not verum’ or verum focus is not focus is the question under discussion in **Horst Lohnstein’s** paper. He opposes the jubilarian and her co-author’s claim that the phenomenon termed verum “focus” by Tilman Höhle is actually not focus but the realization of a verum predicate. Lohnstein counters this claim and proposes that such a verum predicate does not exist, based on Frege’s reasoning about the truth of clauses. Instead, a focused sentence mood results in various crosslinguistic realizations of verum focus.

In his article entitled ‘From information structure to argument structure,’ **Edgar Onea** pursues the project to add **TOPIC** (and communicative **GOAL**) to the set of semantic or theta roles that any theory of argument structure must accommodate. *About*-phrases in predication reporting speech and thinking events, as well as *as-for*-phrases in root clauses, play a crucial role in establishing this. Prime evidence for Onea’s claim would come from direct objects that undoubtedly encode **TOPICS** (as opposed to **CONTENT**). Importantly, Onea emphasizes that one can adopt his general line of thought without necessarily subscribing to any version of the Performative Hypothesis.

2.3 Semantics and discourse

Daniel Büring asks himself: ‘Ist die denn schon 60?!’ and develops ‘An essay on *denn* (and *auch*) in questions’ out of this incredulous exclamative. Contrasting modal *denn* and *auch* in four types of meticulously chosen contexts, Büring shows that *denn* always relates to a contextually salient **CLAIM** proposition, a precondition of which gets checked by the prejacent polar question of the *denn*

clause. The prior discourse expectation of the hearer is that the answer to this question comes out in the negative, thereby contradicting the CLAIM. *Auch* is the unmarked opposition member that signals no such expectation and lends itself to serve as a contrasting element after pragmatic enrichment. Occurrences of *denn* in ‘wh’-questions and in ‘if’-clauses are subsumed under this analysis.

‘Ideophones across modalities’ is the title of **Cornelia Ebert and Markus Steinbach**’s contribution. Their goal is to establish that the ideophones of spoken languages find a direct counterpart in so-called “idiomatic signs” in sign languages. The authors admit that iconicity is more widespread in sign than in spoken languages, so iconicity alone cannot serve as a sufficient condition for a given sign to be counted among the ideophonic/idiomatic signs. They identify the expressive component of gestural demonstrative depictions which complements the descriptive portion of idiomatic signs as the decisive feature to single out ideophones/idiomatic signs in sign languages. This yields a successful overarching notion which unifies spoken ideophones and signed idiomatic signs.

That ‘Phrasal compounds are quotational compounds’ is what **Daniel Gutzmann and Katharina Turgay** argue for. The quotation analysis of phrasal compounds is not new, but it had met with strong criticism in the past. Endowed with a modern theory of quotation à la Recanati, and after taking a closer critical look at some potential empirical counterarguments, they resurrect Wiese’s original idea. Of particular importance is the authors’ highlighting of the fact that indexicals which are contained in phrasal compounds do not refer within the communicative situation at hand when a phrasal compound is uttered.

The proper interpretation site of German illocution-sensitive modal particles such as *wohl* is the topic of **Daniel Hole**’s short note. He argues ‘Against *wohl* in ForceP’. Some researchers like to think of *wohl* as LF-moving to ForceP, where it can interact with the right semantic object if it occurs in polar questions, the question radical {p, $\neg p$ }. Such a movement analysis would have to assume that other operators between the surface position of *wohl* and Force in declaratives – such as ‘fortunately’, or ‘honestly speaking’ – would have to move along to get the scope facts right. Hole deems this to be unlikely. He sketches an account for *wohl* in questions that has Force inform T about the required question radical form of the denotations shipped on upwards from T.

Guido Vanden Wyngaerd and Edoardo Cavarani are the only ones who take full advantage of the license that a *Festschrift* article provides. ‘Che cazzo di articolo di merda’ studies the different behaviors of the two expressive words *cazzo* and *merda* in Italian. By going through the descriptive categories “predicative position”, “stacking”, “transparency” and “rigidity”, they arrive at a classification which has *cazzo* occupy a functional position, where *merda* is

still very much on the common noun side of the scale. While *cazzo* behaves rather rigidly in terms of number marking, *merda* is somewhat on the softer side.

The squib ‘On conclusive discourse particles in Wolof and German’ by **Malte Zimmermann** aptly concludes the series of contributions to Katharina’s *festschrift*. It demonstrates the astonishing and complete parallels between Wolof (Senegambian/Niger-Congo) *daal* and German *eben*. Both particles are discourse-anaphoric, they are inquiry-terminating, and they rely on more involved discourse strategies than simple question-answer sequences. Zimmermann shows that a discourse-tree model with QUDs is empirically superior to one making use of the so-called Table Model, as the function of *eben* and *daal* is more about discourse flow than about interlocutors’ commitment states. Importantly, though, there are other discourse particles like *ja* which lend themselves easily to an analysis in terms of the commitment-sensitive Table Model.

Part 1:

Syntax and morphosyntax

D is not a syntactic primitive

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1 Introduction

A common practice in generative syntax is to assume, in line with early work by Abney (1987) and Szabolcsi (1987), that (in)definite noun phrases (e.g., (1-a)) are expressions of a Determiner Phrase (DP) headed by the article in D.¹ The latter takes the phrase containing the noun and its modifiers (NP) as its complement (1-b). Because D is typically realized by articles in Romance and Germanic languages, which also happen to be the most studied languages in syntax, the apparent typological generalization in (1-c) is often taken to mean that the category D is arguably universal. Accordingly, D is considered to be underlyingly present in all languages (cf. Longobardi 1994), or subject to parametric variation (cf. Chierchia 1998).

- (1) a. a/the nice boy
- b. [DP [D a/the [NP nice boy]]]
- c. (In)definite articles are expressions of D

This view is not unproblematic, though. While (in)definite articles are very common across contemporary Romance and Germanic languages, they were not present in the relevant source languages (e.g., Old Latin, Old English) or can be shown to have emerged during the development of the contemporary varieties. Therefore, D is a derivative category, even in these most studied languages. If D is universal (as the literature may want us to believe) one may further wonder why it took so long for articles to express it in precisely those languages. Indeed, various diachronic studies indicate that determiners

¹Earlier versions of this paper were presented under various titles at GIST 3: Cartographic Structures and Beyond, Universiteit Gent, May 2011, the Interface Talk, Utrecht University, November 2011, the Comparative Syntax Meeting, Leiden University, March 2016, the Séminaire de recherche, Université de Genève, February 2017, the colloquium of the Graduate School on Nominal Modification, University of Frankfurt, December 2018, and the Yale Linguistics Colloquium, March 2019. I'm grateful to the participants in all these events for their comments and suggestions which contributed to improve the present version significantly.

evolved from different grammatical sources, such as, the development of indefinite articles from the weakened form of the Latin numeral ‘one’ *unum/-am* (M/F) (>Catalan/Italian/Spanish *un/una*, French *un/une*, Portuguese *um/uma*, Romanian *un/o*) or the development of definite articles from the weakened form of the Latin distal demonstrative *ille* (>Catalan/Spanish *el/la*, French/Ocitan *le/la*, Italian *il/la*, Portuguese *o*, Romanian *-(u)/-a*) (cf. Ledgeway 2011). Yet, common to this developmental path is the capacity of the source elements to function as pronouns, hence the link between pronouns and articles in these languages. That Romance and Germanic articles have a pronominal source further indicates that they emerged from the clausal domain where pronouns are licensed. In addition, other studies suggest that articles may also represent an areal feature that spread across Romance and Germanic between the 8th and 11th century (cf. Perridon and Sleeman 2011: 3 and also Heltoft 2010, Lander and Haegeman 2013, Börjars et al. 2016). This would explain their absence or scarcity in older varieties in the same language families. Accordingly, articles though ubiquitous in contemporary grammars of Romance and Germanic used to be less so. These observations make one wonders whether the category which articles are assigned to in most contemporary syntactic analyses of noun phrases in Romance, Germanic, and beyond, i.e., D, is indeed a necessary one or whether it could be reduced to other aspects of clause structure.

This question becomes even more relevant when considering typological evidence for D. Many languages of the world (e.g., Sinitic, Niger-Congo, some Slavic) do not have (in)definite articles of the Indo-European type, i.e., the pronominal type. Instead, these languages encode notions corresponding to definiteness by means of particles or other syntactic devices that are not expressions of D (e.g., pre- vs. post-verbal position, classifiers, modifiers, see Cheng and Sybesma 1999, Aboh 2004a). In some of these languages therefore bare noun phrases (i.e., noun phrases involving no overt article or demonstrative) may occur freely in both argument and non-argument positions, where they can be interpreted as (in)definite or generic depending on context. These article-less languages therefore seem not to require an overt D, unlike Romance and Germanic. Instead, they rely on discourse context and specific clausal properties to encode definiteness.

In this regard, Bošković (2008, 2009), among other authors, argues that the absence/presence of articles in Romance/Germanic versus Slavic languages correlates with broad clausal properties of which some are summarized in the following table.

These properties are not universal, and may turn out to be language specific. Yet, they suffice to illustrate that there tend to be strong links between clausal specifications and the possibility for a language to develop an article system. Accordingly, the differences between article languages and article-less

Properties	AL	BNL
Left-branch extraction	yes	no
Adjunct extraction	yes	no
Scrambling (e.g., long distance scrambling from finite clause)	yes	no
Multiple wh-fronting	yes	no
Claitic doubling	no	yes
Transitive nominals with two genitives	no	yes
Island effect in head-initial relatives	yes	no
Majority reading of MOST	no	yes
Negative raising	no	yes

Table 1: The DP/NP parameter (adapted from Bošković 2008)

languages appear to derive from clausal properties rather than a mere spell-out parameter that regulates the pronunciation of D cross-linguistically.²

Taking these observations seriously, I propose that D is not a syntactic primitive. Instead, articles are to the noun what complementizers are to the clause. Articles and clausal complementizers represent two sides of the same coin: nominal versus clausal periphery. This would mean that there is a unique phrase marker with a unique syntactic domain, the Left Periphery (LP), within which different heads may be expressed by articles heading nominal predicate structures (cf., Hiraiwa 2005), or (pronominal) complementizers (e.g., in Romance/Germanic) heading non-nominal predicates.³ In this view, D is merely a convenient label referring to a head within the Left Periphery of a nominal predicate. My rationale is in line with Bowers (1993) who argued convincingly that the lexical domain of all phrase structures includes a Predicate Phrase (PredP) whose exponent could be different categories (i.e., V, A, N, P). In Section 2, I motivate the need for such a view based on data from Gungbe. Section 3 recapitulates a previous account for Akan (a Kwa language spoken in Ghana) and concludes that it cannot extend to the Gungbe facts. In Section 4, I elaborate on the view adopted in this paper, namely that articles are expressions of the left periphery of nominal expressions. The discussion shows that the view proposed in this paper is compatible with the fact that languages that develop (in)definite articles also seem to be the ones that have some form of (pro)nominal complementizers. The latter are lacking in article-less languages. Likewise, some article-less languages also exhibit ‘bare clauses’ where verbal elements are never marked for tense/finiteness distinctions. Put

²I will use the term “article-less” and “bare noun languages” interchangeably in this paper.

³LP is a cover term for Rizzi’s (1997) split-C which comprises the articulation ForceP ... (Topic) ... (Focus) ... FinP.

together, these facts lead me to conclude that the development of (in)definite articles in languages where they are found is a reflex of the development of some expression of the clause left peripheral system. Section 5 includes some concluding remarks as well as speculations as to what structural context may serve as springboard for some pronouns to develop into nominal complementizers referred to as ‘articles’.

2 The DP hypothesis

In their seminal work on the syntax of noun phrases, Szabolcsi (1981, 1987) and Abney (1987) concluded on the basis of a meticulous comparison between specific aspects of the noun phrase and the clause (e.g., agreement, case assignment) that strong parallels between the two suggest that they both involve a functional sequence that projects as the extended projection of the predicate phrase including the lexical head. This has led to the traditional CP/DP parallelism entertained in generative syntax. For Szabolcsi (1987, 1994), D is more akin to C, while Abney 1987: 41) concludes that “it is a hypothetical syntactic category [...] distinguished from Infl and Comp in that it belongs to the nominal system, not the verbal system.” Under this view, D is comparable to Infl in representing the anchorage point of agreement within the nominal system, but it can’t be equated to functional categories within the clause since those are determined by verbal properties which are supposedly absent in the noun phrase. The argument is somehow in contradiction with Abney’s own demonstration of the D-hypothesis based on similarities between the clause and the noun phrase, including empirical facts from typologically different languages (e.g., Mayan, Turkic, Uralic) showing that noun phrases can display inflectional morphology typically found in the clausal domain. Yet, the view that D is a syntactic category on its own (arguably a primitive) has dominated the field ever since, and cross-linguistic differences are accounted for in terms of parametric variation (cf. Abney 1987, Longobardi 1994, Chierchia 1998, Bošković 2008, 2010).

This view apparently subsumed Szabolcsi’s (1987, 1994) perspective which is compatible with the line I’m defending in this paper. Based on agreement facts and case manifestations in the noun phrase in Hungarian, Szabolcsi demonstrates that articles come in two types: C-like subordinators (which she termed D), and elements encoding nominal expression of agreement in a way comparable to INFL. She referred to these elements as Det. In her account, D hierarchically precedes Det, but is selected from the lexicon in agreement with the definiteness and quantificational features of the noun phrase that are expressed by Det (2-a). In addition, D has the property to turn the nominal predicate into an argument (see also Longobardi 1994). Adopting this view within the cartography descriptive framework, Aboh 2004b shows that, similarly to the

clausal left periphery, the nominal periphery (i.e., the D-Det articulation in Szabolcsi's terms) involves topic and focus projections (TopP and FocP) whose specifiers host topic and focused constituents, as represented in (2-b).

- (2) a. [DP [D [Nominal-Infl ... [DetP [Det [... NP ...]]]]]]
 b. [LP ... [L ... [NumbP ... [Numb ... [FP ... [F ... N ...]]]]]]

As (2-b) indicates, TopP and FocP project between LP, the highest projection of the Left Periphery, which expresses the interface between the discourse and the nominal expression, and NumP, the lowest projection, which links this domain to the nominal I(nflectional)-system or INFL. NumP encodes the agreement features and certain referential features (e.g., number, deixis) that parallel those of the nominal INFL. In terms of this view, noun phrases involve covert predication of which the noun head functions as a predicate of the referent of the whole LP.⁴ This would mean that the nominal INFL (i.e., FP in the representation (2-b)) includes a subject position that may host the possessor in possessive constructions (see for instance Campbell 1996).

The interested reader is referred to Aboh (2004a,b) for discussion. For the purpose of this paper, it suffices to note that the representation in (1-b) is commonly taken to be the underlying structure of noun phrases in languages which exhibit (in)definite articles, while the question remains open for languages in which there are no overt articles and/or languages in which bare nouns as well as nouns combined with article-like elements exhibit the same distribution. Such languages do not display the bare NP versus DP asymmetry observed in Romance and Germanic and other commonly described languages. Under a generalized D-hypothesis (e.g. Longobardi 1994), where syntax-semantics mappings are uniform across languages, noun phrases (NPs) denote sets and cannot function as arguments, which typically pick up individual referents in discourse. The function of D therefore is to turn such set denoting NPs into licit arguments. In this view, D must always be underlyingly present in nominal structures, including in languages where it does not (always) have any exponence. Such languages are analysed as involving null Ds. According to Chierchia's (1998) Nominal Mapping Parameter, however, this need not be the case. Languages may differ as to whether they require NPs to be introduced in syntax by combining with the category D (as in Romance and Germanic) or allow bare NPs to function as argument (as in Sinitic and Slavic). NPs are specified for the parametric values [\pm PRED, \pm ARG], which regulate their distribution. Focussing on the feature [ARG] for the purpose of the current discussion, languages in which NPs are specified as [+ARG] (e.g., Sinitic, Slavic) display bare NPs in argument positions. This is unlike languages in which NPs are marked

⁴I'm using the term LP for consistency, but this projection corresponds to what is traditionally referred to as DP, a label I adopted in previous work.

as [-ARG], and are disallowed in argument position, unless they project D.

Whether one adopts a universalist or parametric approach to D, the consensus in generative syntax has been that noun phrases can be headed by a functional category D, fundamentally different from C and T which are found in the verbal domain (i.e., within the clause). This has led to further studies such as Bošković (2008, 2009), who argues for D as a parametrized phase head that correlates with a wide range of clausal properties, which in turn suggest typological distinctions between article and article-less languages. Under Bošković's approach, one could see such clausal correlations as resulting from phasehood and how presence or absence of a phase can affect clause structure in general.

Since this family of approaches generally distinguish between article and article-less languages based on a presumed distinct distribution between bare NPs and DPs, one does not expect to find a language in which apparent DPs and NPs would display the same distribution. This type of languages are actually formally excluded by Chierchia's (1998) Nominal Mapping Parameter in conjunction with his Blocking Principle. Yet, this is precisely the situation we find in the Gbe languages of the Kwa family. In the author's language Gungbe (a Gbe languages of the Kwa family spoken in Porto-Novo, Cotonou, and environs in Benin Republic, as well as in Gbadagri and environs in Nigeria), a bare noun phrase (BNP) may freely occur in any syntactic position and may be interpreted as *indefinite*, *definite*, or *generic* depending on context. In the following example, the speaker in (3-a) is enquiring about what happened, triggering the answer in (3-b). In this example, the speaker is reporting a hearsay about the event, hence the BNP *àsé* is interpreted as an indefinite cat.

(3) a. Context:

Été wè jì?

what FOC happen

'What happened?'

b. Má nywèn, àmó yòkpó lé qù **àsé** jè dòtò mè!

NEG.1SG know.3SG but child PL say cat fell well in

'I don't know, but the kids said a cat fell in a well!' (Indefinite)

In the context below, speaker (4-a) just got a cat and is asking about how to feed it. Note that the question too contains a BNP *cat*. In the answer (4-b), the interlocutor replies that cats in general eat fish, hence the BNP is interpreted as generic.

(4) a. Context:

Été wè àsé nò qù?

what FOC cat HAB eat

'What do cats eat generally?'

- b. Àsé nò qù hwèví.
 cat HAB eat fish
 ‘A cat/cats often eat/s fish.’ (Generic)

In the context described in (5), the speakers are conversing about a cat and a dog, *Mus* and *Jeff*, respectively. Both *Mus* and *Jeff* live in the household and are known for their unexpected peaceful relation. Speaker A has just noticed that *Mus* climbed on *Jeff*’s back. In Gungbe, the sentences in (5) are all felicitous in this context. Note from example (5-b) that it includes the BNPs *àsé* ‘cat’, and *àvún* ‘dog’, which must be interpreted as definite, i.e., *Mus* and *Jeff*, respectively. For examples (5-b-d), I added the intended meanings in square brackets, which I refer to as “discourse meaning”.

- (5) a. Kpón! Mús xé Jeff jí.
 look, Mus climb Jeff TOP
 ‘Look! Mus climbed on Jeff’s back.’
- b. Kpón àsé! É xé àvún jí.
 look cat 3SG climb dog TOP
 ‘Look at the cat! It climbed on the dog’s back.’
 [Discourse meaning: a cat on a dog’s back, interesting]
- c. Kpón àsé ló! É xé àvún jí!
 look cat DET 3SG climb dog TOP
 ‘Look at this cat. It climbed on the dog’s back.’
 [Discourse meaning: Mus is known to do strange/funny things.
 This is its latest funny behaviour]
- d. Kpón àsé ló! É xé àvún ló jí!
 look cat DET 3SG climb dog DET TOP
 ‘Look at this cat. It climbed on the dog’s back.’
 [Discourse meaning: Mus and Jeff are both known to do strange/
 funny things. This is their latest funny behaviour]

As we can see, these sentences do not all have the same discourse meaning. While (5-a) could be regarded as a neutral description of the situation, examples (5-b-c) encode various discourse meanings, including the speaker’s surprise or amusement. The BNPs here are all interpreted as definite. These examples also show that a BNP in Gungbe (e.g., (5-b)) has similar distributions as noun phrases including determiner-like elements (5-c-d). This is shown further with example (6), in which a BNP is used after a first mention by a noun phrase including what appears to be a determiner (cf. Aboh and DeGraff 2014): The first mention included an apparent indefinite article, but the second mention is a BNP.

- (6) Bare noun after first mention by a DP-like noun phrase.
- Sétù yì xò [zòkèké qàxó qé] ná àsú étòn bò [zòkèké]
 Setu go buy motorbike big DET to husband 3SG.POSS but motorbike
 wá nyín túklá tò xwé gbè.
 come become trouble at house in
 ‘Setu bought her husband a big motorbike, but the/this motorbike became a problem in the household.’

The examples under (7) further indicate that the element *qé* seems a garden variety ‘indefinite’ article.

- (7) Context: What are you doing here?
- a. Ùn tò wémá dín ná xià.
 1SG PROG book search.PTCP PREP read
 ‘I’m looking for a/some book to read.’ [I’m looking for anything book-like to read]
 - b. Ùn tò wémá qé dín ná xià.
 1SG PROG book DET search.PTCP PREP read
 ‘I’m looking for a specific book to read.’
 [N.B. Even though I might not have a specific book in mind, I have a clear idea what it should be about. E.g., comics vs. novel]

Looking at examples (5-c)-(5-d) and (6)-(7), one can conclude that definiteness is not primarily encoded by articles in Gungbe even though the language displays elements like *ló* and *qé* which at first sight behave like (in)definite articles, and are formally distinct from demonstratives. In Gungbe, all nominal markers and modifiers can co-occur freely with the noun, as in (8).

- (8) Séna xò àgásá (qàxó) (àwè) (éhè) (ló) (lé).
 Sena buy crab big two DEM DET NUMB
 ‘Sena bought these two big crab.’

Under Chierchia (1998), a language like Gungbe is unexpected, since it lacks a classifier system, but allows BNPs and noun phrases including apparent determiners to compete for the same positions. In this language, BNPs can be definite, indefinite, or generic and occur in argument positions, thus violating the “Blocking Principle”.

Other facts characterizing BNPs in Gungbe include their ability to be modified by either a bare relative clause, as we can see in examples (9-a) or a relative clause followed by what appears a definite marker as in (9-b).

- (9) a. Séna xò [àgásá [qé mí wlé sò]].
 Sena buy crab REL 1PL catch yesterday
 ‘Sena bought the crab that we caught yesterday.’

- b. Séna xɔ [[àgásá [dqé mí wlé sɔ]] lɔ].
 Sena buy crab REL 1PL catch yesterday DET
 ‘Sena bought that (specific) crab that we caught yesterday.’

These examples show that definiteness can be achieved with relativization alone, since (9-a) has a restrictive reading, while (9-b) with the marker seems to encode other discourse features. The behaviour of these nominal markers and their discourse function is further illustrated by the fact that they can combine with proper names (10-a) on a par with common noun phrases (10-b).

- (10) a. Séna (lɔ) ná wá hwèjáyí.
 Sena DET FUT come afternoon
 ‘Sena will come in the afternoon [e.g., as in French, *le Paul viendra ce soir*]’
- b. Àgahún (lɔ) ná wá hwèjáyí.
 airplane DET FUT come afternoon
 ‘That/the (specific) airplane will arrive in the afternoon’

Put together, these facts show clearly that BNPs and various noun phrases including determiner-like elements, which would qualify as DPs in most common descriptions, have the same distribution in Gungbe. We also see here that the elements that are glossed as DET in these examples do not seem to encode (in)definiteness categorically. Indeed, BNPs can be interpreted as (in)definite or generic in Gungbe upon context, and determiner-like elements can be added to referents that are already definite (e.g., restrictive relative clauses, proper names), while being compatible with other deictic determiners, such as, demonstratives (8). While Aboh (2004a) treated the Gungbe nominal markers as definite and indefinite specificity markers, the facts reviewed here led him to analyze them as DP-internal topic markers (Aboh 2004b). I will adopt this analysis here, but before returning to this discussion, let’s briefly review Arkoh and Matthewson’s (2013) account for similar facts in Akan, in comparison to Gungbe.

3 Gbe (Kwa) involve German-like strong articles

Building on Schwarz (2009), Arkoh and Matthewson (2013) argued that Akan (Kwa) determiner-like element *nó* marks familiarity. The interested reader is referred to this paper and references therein for a detailed discussion on Akan determiners (see also Owusu 2019). Here, I only report some core properties of these categories that are relevant to the current discussion. According to Arkoh and Matthewson (2013), there are three main uses of *nó*: a definite determiner in (11-a-b), a third person singular animate object pronoun (11-c),

and a dependent clause marker. In the latter case, it may occur in a relative clause (11-d) or in final position of a conjoined clause (11-e) (cf. Arkoh and Matthewson 2013: 4,23).

- (11) a. Pàpá númeró bá-à há
Man FAM come-PST here
'The man came here.'
- b. Kwámì dzì èdzìbán númeró má-à àbòfrá númeró
Kwame take food FAM give-PST child FAM
'Kwame gave the food to the child.'
- c. Kwámì dzì èdzìbán númeró má-à númeró
Kwame take food FAM give-PST 3SG
'Kwame gave the food to him/her.'
- d. Kòffí hú-ù máàmí númeró á-à ò-tní tám númeró
Kofi see-PST woman FAM REL 3SG.SUBJ-sell cloth DCM
'Kofi saw the woman who sells cloth.'
- e. Nsú tó-ì númeró nnà má-àdà
water fall-PST DCM and 1SG.SUBJ-sleep
'I was asleep when it rained.'

At first sight, the data in (11) suggest that Akan *númeró* is polyfunctional and polysemous, an observation that already points to the fact that this element is not the vanilla determiner commonly described in Romance and Germanic (even though it may have a pronominal use as well). One may therefore wonder whether *númeró* is indeed a genuine realisation of D. To this question, Arkoh and Matthewson (2013) answered that the Akan *númeró* encodes *familiarity* which they defined as follows:

Familiarity

The speaker takes the existence of the referent to already be present in the common ground of the discourse (the shared knowledge between speaker and hearer), (Arkoh and Matthewson 2013: 5).

Given my translations of several Gungbe examples above (e.g., (7), (9), (10)), as in '*that/the (specific) airplane will arrive in the afternoon*' in (10-b), it seems reasonable to think that the article-like elements in Gungbe could encode *familiarity* as well. If so, one could extend Arkoh and Matthewson's (2013) analysis to Gungbe (and presumably other Kwa languages) as well. Yet, a major empirical challenge to this view is that elements like Akan *númeró*, and Gungbe *lɔ́* appear to pair with apparent indefinite counter-parts, namely *bí* in Akan (cf. Owusu 2019 and references cited there), and *dé* in Gungbe (cf. (6), (7-b)). The distributive properties of these elements indicate that they cannot be said to encode 'unfamiliarity' i.e., the opposite of *familiarity*. In what follows, I

further show that expression of *familiarity* is not even a condition for the nominal markers *lɔ́* (and *qé*) to be used in Gungbe. In this language, both *lɔ́* and *qé* can occur with an all new noun phrase, though under different discourse conditions as already suggested in examples under (5). Consider again the following context:

- (12) **Context:** *Tóbì* is visiting her little sister *Sènám*. *Tóbì* and her husband appear to form a perfect couple. They both have a wonderful career, and seem to be living a very happy life with their kids. *Sènám*, on the other hand, is known within the family to have been struggling both with her couple and her career. Everybody in the family is worried for *Sènám*. Over the past week, *Tóbì* stayed with her sister to help out, but the day before she left, *Sènám* realized that *Tóbì* was anxious and sad. She then asked:

- a. *Sènám*:
 - (i) Été útù wè à cí xwí móñ?
why cause FOC 2SG appear quite like.that
'Why are you so quite?'
 - (ii) Mà zé xó nyèn-tòn qó jè tùklá bló.
2SG.NEG take word 1SG-POSS for reach trouble NEG.PRT
'Don't let my troubles affect you.'
- b. *Tóbì*:
 - (i) Jó xó dó. Mè qòkpó qòkpó wè qó étón.
let word PRT person each each FOC has 3SG-POSS
'Don't worry. Everybody has her/his own.'
 - (ii) Ná jè [xwé lɔ́] gbè dín bò [àhàn nù mlán nò lɔ́] ná bé tùklá kpé mì.
1SG.FUT reach house DET at now and drink drink
praise person DET FUT collect trouble meet 1SG
'I will get to that house now and that drunkard will meet
me with troubles.'
- c. *Sènám*:
 - (i) Hén! Àsú twè nò nù àhàn wè?
PRT husband 2SG.POSS HAB drink drink FOC
'What?!? Does your husband drink?'
 - (ii) Má mòn-è ní nù àhàn kpɔní!
1SG.NEG see-3SG MOOD drink drink never
'I've never seen him drink (alcohol).'
 - (iii) [Mè qé] lé sín xó nò kpácá dó mì tàùn.
Person DET PL POSS word HAB surprise at 1SG.ACC very
'Some people really surprise me!'

First, let's us note that nothing in this discourse context could prompt *Sènám* to be thinking about *Tòbi*'s husband as the source of her worries, since both appear to form the happiest couple of the family. Second, even if we can construe a scenario in which marital affairs are always in the background in family issues, the husband's addiction is out of question here since he is known publicly not to drink alcohol. Focusing on the noun phrases in square brackets and boldface in these examples, we see that *Tòbi* introduces both her house and the referent characterized as drunkard with *lɔ́*. One cannot evoke *familiarity* to account for the presence of this element here, unless we assume that everything that is part of speaker-hearer's knowledge must also “*already be present in the common ground of the discourse*” and active for retrieval. This will obviously lead to incommensurable questions of memory load and processability. Interestingly, when referring back to this individual in her reaction, *Sènám* used the element *dé* to express that she is surprised by some people. Here as well, it's not clear whether *Sènám* has a certain type of characters in mind, but it would be strange to analyse this referent here just as an indefinite. Thus, *dé* is not a mere indefinite article, and nor is *lɔ́* a mere definite marker. This discourse context also shows that a description of both *lɔ́* and *dé* in terms of familiarity would be an oversimplification.

Like in Akan, *lɔ́* is multifunctional too, since it can be used to mark clauses as well (cf. Aboh 2004a, Aboh and DeGraff 2014).

- (13) [dé hwè hùn lɔ́] víví ná mì gbáú.
as sun open DET please PREP me a.lot
'That the sun shined pleased me a lot.'

This usage can hardly be accounted for in terms of *familiarity* of a specific referent, since *lɔ́* marks the clause as a whole. This is so even though the event referred to is construed as shared knowledge in this discourse. In this regard, it is remarkable that the various analyses proposed in the literature over the past decades to account for these categories in (Benue)Kwa and beyond revolve around notions such as *specificity/topicality* and *noteworthiness* (e.g., Aboh 2004a,b, 2006, Ionin 2006), *saliency* (e.g., Adjiboye 2005), and *familiarity* (e.g., Arkoh and Matthewson 2013). Conflating *topicality* and *familiarity* on the one hand, and *specificity*, *saliency* and *noteworthiness* on the other, we arrive at the following tentative characterization for these nominal markers in Gungbe (and presumably in (Benue)Kwa):

- *lɔ́* expresses the features [STRONG TOPIC, NOTEWORTHY], where *strong topic* means *familiar* to both speaker and hearer.
- *dé* expresses the features [WEAK TOPIC, NOTEWORTHY], where *weak topic*

means *familiar* to the speaker only, but relevant for the ongoing discourse.

Following Ionin (2006: 188), “the term *noteworthy* is used here in its most literal sense: *worthy of note* (in a given discourse). While *noteworthiness* seems to be a condition for these markers to occur, their actual form is sensitive to whether the referent is *strongly topical*, that is, *familiar* to both speaker and hearer or only to the former, though relevant to the ongoing discourse. This would mean that any Gungbe noun phrase that does not satisfy these conditions, will occur as a bare noun phrase. Consequently, what is perceived as *definiteness* in Gungbe is a side-effect of the combination of the features *topicality* and *noteworthiness*. We can therefore conclude that these nominal markers encode discourse properties similarly to discourse markers within the clause (cf. Aboh 2004a).⁵ The working hypothesis, which I further elaborate on in the next section is that:

Gungbe noun phrases are embedded under a subordinator (or nominal typing element) heading the nominal left periphery LP, which has no morphological exponence. *lɔ́* and *qé* mark different types of topics within the noun phrase embedded under LP (cf. Aboh 2004b).

Under this view, and assuming that the (Benue)Kwa languages shed light on a fundamental aspect of human language capacity, we can hypothesize that there is no syntactic primitive D. Accordingly, there should be no discussion of CP vs. DP parallelism in the literature because both C and D are expressions of the same underlying left peripheral structure LP, which also qualifies as a phase (cf. Hiraiwa 2005). This in turn would mean that there is only one phase type: LP, despite contrary claims in the field. Following the tradition, I assume that the nominal typing element within LP is responsible of type shifting, thus allowing nominal expressions to function as arguments. While aspects of LP are encoded by articles in most Germanic and Romance, as well as most languages cited in the literature, other aspects related to topicality and noteworthiness seem to be realised in languages like Gungbe. These markers further illustrate the isomorphism between nominal and clausal LPs advocated for here.

4 Bare clauses and bare noun phrases

A direct implication of this working hypothesis is that Gungbe (and similar languages) will not only exhibit bare NPs since the language has no dedicated

⁵Interestingly, Aboh (2004a) observed that the presence versus absence of the clausal topic marker *yá* in Gungbe seems to correlate with strong versus weak topics.

determiner for this position, but also bare clauses, that is, clauses in which T and (traditional) C will commonly be null.

4.1 Bare clauses and the absence of tense/finiteness distinction

This section illustrates bare clauses in Gungbe and shows that tense and finiteness distinctions (which are properties of T and FinP under Rizzi 1997) are not systematically marked morphologically in this language. In example (14-a) we see that all lexical elements, i.e., the noun phrases realising the arguments as well as the verb are bare. The latter is never inflected in Gungbe (and other (Benue)Kwa languages). We also see from this example that verbs encoding a dynamic event (e.g., *cook*) are interpreted as expressing a completed event from which past tense is computed (cf. Aboh 2004a). Accordingly, there must be an operator in the clause that binds past time as determined in the discourse (cf. Stowell 2007). Likewise, the bare nouns in these examples suggest that a similar mechanism must be at work within the noun phrase to establish definiteness. In addition, these examples show that bare nouns can also function as predicate when introduced by a stative verb. Such individual-level predicates are typically interpreted as continuous state, unless otherwise specified. This is the case in example (14-c) where the verb series *come go* points to a state that was true in the past. Note again that none of the elements in these sentences is inflected, thus illustrating what I refer to here as bare clauses (cf. Aboh 2004a, Aboh and DeGraff 2014).

- (14) a. Séná **qà** àgásá din.
 Sena cook crab now
 ‘Sena has just cooked crabs.’
- b. Séná jò gbètó.
 Sena be.born human
 ‘Lit. Sena is/was born human, i.e., Sena is/was a nice person’
- c. Séná jò gbètó wá yì.
 Sena be.born human come go
 ‘Lit. Sena used to be a nice person (i.e., he is no more a nice person).’

Because Gungbe uses bare clauses of the type in (14), there is no formal distinction between finite vs. non-finite clauses (except when the sentence or VP is nominalized). Compare, for instance, the finite verb in (14-a) to the embedded non-finite verb in (15-a), where non-finiteness is determined structurally. Indeed, the only mark of non-finiteness in this example is the clausal preposition *ná* which introduces the embedded clause similarly to *to/for* in English. That the embedded clause is indeed non-finite is also indicated by the fact that

it cannot host an overt subject, hence the ungrammatical example (15-c). Subjects must always be overtly realised in finite clauses in Gungbe (cf. (14)).

- (15) a. Séna jró [ná **dà** àgásá dìn].
 Sena want PREP cook crab now
 ‘Sena want to cook crab now.’ (Embedded non-finite clause)
- b. *Séná jró [ná é/émi **dà** àgásá dìn].
 Sena want PREP 3SG.NOM/ACC cook crab now
 ‘Sena want her to cook crab now.’ (Embedded non-finite clause)

The bare clauses in (14) and (15-a) clearly form a pattern with bare noun phrases for which definiteness had to be determined in context too. We can therefore conclude that (temporal) deixis in Gungbe is fixed in context (Stowell 2007), just as definiteness is fixed in context too. However, this conclusion should not obscure the fact that Gungbe bare clauses co-exist with properly future tense-marked clauses as in (16) which form a minimal pair with example (14-a), since the only difference between the two is the presence of the future marker in (16) but not in (14-a).

- (16) Séna ná **dà** àgásá **dìn**.
 Sena FUT cook crab now
 ‘Sena will cook crabs now.’

Gungbe therefore displays both tenseless (i.e., non-future) and future tense-marked clauses (i.e., (14-a) vs. (16)), just as it exhibits BNPs alongside with noun phrases that include various deictic elements as well as topic and noteworthiness markers. In this language, the absence of morphological marking for ‘definiteness’ (as described in the literature) goes hand in hand with the absence of finiteness distinction in the clause. While these characterizations seem to hold across (Benue)Kwa, they also point to an apparent generalization that goes beyond these languages when we consider the function of articles.

Indeed, the following general picture seems to emerge about articles:

- (17) a. Article languages → Definite vs. Indefinite → Finite vs. Non-finite (e.g., Romance, Germanic)
 b. Article-less languages → Topical vs. Non-topical → No finiteness distinction (but maybe a modal distinction) (e.g., (Benue)Kwa)

We can further interpret this rough description as follows:

- (18) Languages which lack grammatical T/Finiteness distinction also lack grammatical referential distinction (sometimes encoded by (in)definite articles) (see also Bošković 2010: 26).

In the context of this discussion, we can further arrive at the following general structural description involving a unique phrase marker).

- (19) [Clause Typing ... [... topic ... focus ... [Finiteness ... [Inflection ... Predicate ...]]]]]]
 (cf. Bowers 1993, Cardinaletti and Starke 1999, Déchaine and Wiltschko 2002).

This description implies that:

1. Clausal properties condition the presence or absence of articles in languages so that one can postulate the following developmental path for Romance and Germanic: RELATIVE COMP > CLAUSE-TYPE > ARTICLE
2. Syncretism between (in)definite articles (e.g., Romance, Germanic), (pro)-nominal relative complementizers and clausal complementizers is not accidental (cf. Meyer 2017, Baunaz and Lander 2018).
3. Such a syncretism will not be found in Gbe-type or article-less languages in general.

These suggestions further imply that the (Benue)Kwa languages do not only lack prototypical articles, as argued for here, but they also lack pronominal declarative complementizers which are so common in Romance and Germanic. I believe the property to be general across Niger-Congo even though I stand to be corrected.

4.2 On the absence of (pro)nominal COMP

This conclusion appears to be supported by the empirical data from Gbe, Romance, and Germanic, as summarized in Table 1 which contrasts nominal and clausal properties in those languages.

	Pronominal declarative COMP	Syncretism with demonstrative and relative pronouns	Finiteness distinction
Romance and Germanic	yes	yes	yes
Gungbe and other Kwa	no	no	no

Table 2: Contrasting clausal and nominal patterns

Table 2 shows that Gungbe (and to my knowledge most (Benué)Kwa), lack Tense/Finiteness distinctions on the verb as well as (pro)nominal complementizers that are syncretic with demonstrative and relative pronouns. Complementation in these languages involves several strategies, including zero complementation. Example (20-a) from Gungbe illustrates a main clause which embeds another clause in (20-b), though the latter is not introduced by any overt grammatical element.

- (20) a. ùn **qɔ̄** xó
 1SG speak word
 'I talked/spoke or I said something.'
 b. ùn **qɔ̄** [Súrù ná wá].
 1SG speak Suru FUT come
 'I said that Suru will come.'

In addition to zero complementizers as in (20-b), the example under (21-a) shows that the embedded clause can be introduced by the same verb of saying *qɔ̄*. One should not take (21-a) to instantiate a doubling structure, since we see in example (21-b) that the two tokens of *qɔ̄* can be separated by a relative clause functioning as indirect object.

- (21) a. ùn **qɔ̄** **qɔ̄** Súrù ná wá.
 1SG speak/say COMP Suru FUT come
 'I said that Suru will come.'
 b. ùn **qɔ̄** ná [v̩ qè wá kpón mì lé] **qɔ̄**
 1SG speak/say PREP children REL come see 1SG.ACC PL COMP
 Súrù ná wá.
 Suru FUT come
 'I told the children who came to visit me that Suru would come.'

Likewise, example (22-a) indicates that a clause-introducing *qɔ̄* combines with various classes of verbs, and precedes topicalised and focused elements, an indication that it is an expression of the left periphery rather than a lexical predicate (cf. Aboh 2004a). We can conclude from these examples that these constructions are not expressions of serial verb constructions (cf. Aboh 2009).

- (22) a. ùn sé/lìn/mòn/nywèn **qɔ̄** Súrù ná wá.
 1SG hear/think/see/know COMP Suru FUT come
 'I heard/thought/saw that Suru will come.'
 b. ùn lìn **qɔ̄** àzón éhè **yà**, égbè **wè** Súrù sígán bàí-ì.
 1SG think that work DEM TOP today FOC Suru can do-3SG
 'I thought that, this work, Suru can do it TODAY.' (allows long wh-extraction)

Note also that *dɔ* can head subject clauses (unlike verbs in a serial verb construction):

- (23) [dɔ gbètɔ nò dó fí lè] kpáca mì tàùn.
 that human FUT sleep here this.way surprise 1SG very
 ‘That someone can sleep here in this way surprises me a lot’

Since Gungbe lacks both vanilla articles and complementizers, I take this to be supporting evidence that so-called articles express a nominal left periphery. Following this rationale, the observations summarized in Table 3⁶, including many other aspects not discussed here across Romance/Germanic and Gbe/Kwa cannot be accidental.

	Verbal COMP	Pronominal COMP	T; +/- Finite	V-to-T	V-to-Asp	Copulable	Clitic Mvt	Free Bare NP
Romance/ Germanic	no	yes	yes	yes	yes	yes	yes	no
(Benue)Kwa	yes	no	no	no	yes	no	no	yes

Table 3: Clause structure properties between bare noun languages and determiner languages

Aside from V-to-Asp movement, which Aboh (2004a) assumes is present in all these language families, the two groupings mirror each other: where Romance/Germanic displays a nominal and clausal property, (Benue)Kwa lacks it and vice versa. This observation suggests the following generalization:

- (24) a. If a language has T/Finiteness distinction and (pro)nominal COMP, it *may* have corresponding (in)definite articles.
 b. If a language has no T/Finiteness distinction and no (pro)nominal COMP (or involves a verbal COMP instead), it will have no corresponding (in)definite articles.

This generalization basically means that the development of (in)definite articles (as described in the literature) is a reflex of the spell-out properties of the

⁶I explored these typological properties in a sample, adapted from Rijkhoff (2002), including: Oromo Cushitic (Afroasiatic); Maale (Omotic); Nivkh (Isolate); Gude (Chadic); Lango (Linotic); Hixkaryana (Carib); Quechua (Quechuan); Ngalakan (Australian Aboriginal); Abun (Papuan); Yupik Eskimo (Eskimo); Kayardild (Australian); Movima (Isolate); Maale (Afroasiatic); Mandarin Chinese (Sinitic); Japanese, Korean, Saramaccan, Haitian Creole, Sranan. The primary results suggest that the asymmetry described in Table 2 holds across these languages as well.

left periphery. Further study is certainly needed to confirm this claim, but one can recall from the development of Romance and Germanic complementizers that (in)definite articles and (pro)nominal complementizers either developed simultaneously, or the said articles emerged subsequently to the development of complementizers. The discussion above suggests this development is not accidental. To the best of my knowledge, there does not seem to be any case in which categorical (in)definite articles (of the Germanic/Romance type) developed in total absence of a (pro)nominal declarative complementizer. Everything else being constant, we can now suggest that:

- (25) There should be no language that has categorical (in)definite articles required for argument NPs **but lacks both (pro)-nominal complementizer and T/Finiteness distinction.**

(25) holds true of Table 2 and the languages mentioned in Footnote 5. If indeed definiteness articles and complementizers were two unrelated categories, though they show parallelisms as the literature would have us believe, the question arises why the absence/presence of one would imply the absence/presence of the other cross-linguistically. Current analyses of D and C parallelism offer no insight into this question.

5 Concluding remarks and further conjectures

In addressing this question, I propose the developmental path in (26).

- (26) (In)definite article \supset (pro)nominal COMP \supset relative COMP \supset T/Finiteness distinction

According to (26), the development of left peripheral articles of the pronominal type is an immediate consequence of the left periphery of the clause that involves a pronominal COMP. If so, we now face the question of how a pronoun ends up spelling out this portion.

Very detailed synchronic comparative studies are needed to answer this question, but one could speculate about the following scenario. Suppose Larson (2005, 2007) is right in proposing that the point of comparison between noun phrases and clauses should be at the level of DP versus VP rather than DP versus CP/TP, since “determiners express relations between sets” (Larson 2007: 49). Under such an approach, we can propose that the determiner starts out as a pro-clitic (or a relator) within the nominal predicate and subsequently moves to the left periphery, as an instance of clitic climbing. This is consistent with the observation about clitic movement in Table 3, may well be a consequence of Wackernagel clitics, so prominent in Indo-European. Building on previous

discussion, I tentatively propose that articles are expressions of FinP, where they encode referentiality and individuation as illustrated in (27).⁷

- (27) [ForceP ... [Force ... [... topic ... focus ... [FinP=NumP ... [Fin=Num ... pro-det ... [INFL ... pro-det ... [PredP ... pro-det ... V/N ...]]]]]]]

The proposed analysis is compatible with the fact that in languages that allow NP-movement internally to the noun phrase (i.e., movement to Topic or Focus position), the nominal phrase raises to the left of the article or nominal topic marker as shown, for instance, in work by Bernstein (1997, 2001a,b) on demonstrative reinforcer constructions. Likewise, this view is compatible with Bošković's (2008, 2009) correlations reported in the introduction, and the fact that languages with articles may also display clitic doubling. Finally, representation (27) seems to indicate that most languages (including those commonly reported in the literature for having (in)definite articles) hardly realize the highest position within the nominal periphery i.e., Force, the subordinator. This would be comparable to independent main clauses which commonly lack overt COMP.

Under (27) as the unique phrase marker for both nominal and verbal expressions, the facts about clausal determiners in (Benué)Kwa can be accounted for naturally. We've already seen in Section 3 that Akan *nó* fulfills such a function and occurs in sentence-final positions. This was illustrated in (11-d) repeated here as (28) for convenience.

- (28) Kòffí hú-ù máàmí nó áà ð-tí tám nó
Kofi see-PST woman FAM REL 3SG.SUBJ-sell cloth DCM
'Kofi saw the woman who sells cloth.'

Such clausal determiners have been discussed in the literature for other Kwa languages, as well as some creoles (cf. Aboh 2004a, 2006, and references therein). In Gungbe, the element *lɔ* can occur at the clausal level too. This is illustrated by the pair in (29) whereby (29-b) includes the clausal determiner. What is noticeable about Gungbe, and distinguishes it from Akan and similar languages, is that such constructions are typically introduced by a relative marker *dɛ*, somehow suggesting that such constructions are headless event relatives (cf. Aboh 2010).

- (29) a. Súrù hòn.
Suru flee
'Suru fled'

⁷Aboh (2004b, 2010): Movement to the left periphery is triggered by discourse-driven features arguably located in Topic, Focus, and Finiteness/Referential features located under Fin, or if one assumes Meyer (2017) by relativization.

- b. qĕ Súrù hòn ĺ
 as Suru flee DET
 ‘As Suru fled/the fact that Suru fled.’

When combined with other clausal markers, we get the pattern in (30-a).

- (30) a. qĕ Súrù hòn ĺ wè yà?
 as Suru flee DET FOC TOP.INTER
 ‘As Suru fled’
 b. Súrù yà uó wè hòn
 Suru TOP 3SG FOC flee
 ‘As for Suru HE fled’

The sequence in (30-a) results from snowball movement of the clause as illustrated in (31) (cf. Aboh 2004a). Under this representation, clausal *ĺ* realizes FinP, the low position within the left periphery, while *qĕ* realises Force.

- (31) [ForceP [Force qĕ [TopP Súrù hòn ĺ wè [Top yà [FocP Súrù-hòn-ĺ [Foc wè [SpecFP Súrù-hòn [F ĺ [FinP [Fin [Súrù-hòn]]]]]]]]]]]]

These data and their analyses add to our conjecture that elements that are commonly treated as D often occur within the left periphery (even in languages which lack pronominal declarative complementizers). This view is also compatible with suggestions made by Meyer (2017), Baunaz (2014, 2016), Baunaz and Lander (2018) that pronominal complementizers are built on a nominal core as illustrated in (32):

- (32) Nominal fseq: Dem > COMP > Rel > Wh > n (cf. Meyer 2017, Baunaz 2014, 2016, Baunaz and Lander 2018)

The view of a nominal source for complementizers (and articles) in Romance and Germanic may shed further light on the fact that these languages exhibit a syncretism between these two categories, while no such syncretism arises in Gbe (or other (Benue)Kwa languages I’m aware of).

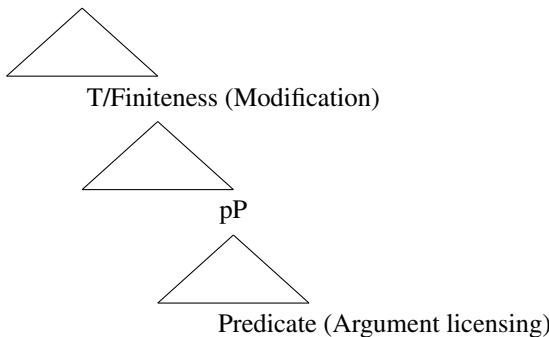
(33)	Gungbe	qɔ	ní	qĕ
	English	that	if	that
	French	que	si	que
		DECLARATIVE	CONDITIONAL	RELATIVE

Absence of syncretism in Gungbe suggests that there is no developmental path in this language (and other (Benue)Kwa) to reach the Romance/Germanic-type article system.

Together, all these facts support the view that there is a unique phrase marker

including a unique left periphery LP which takes different forms depending on the nature of the predicate it embeds. Assuming peripheries are also phases by definition, we reach the conclusion that there are two phases only (i.e., L, p), where ‘p’ stands for predicates in general.

- (34) LP (subordination and anchorage of discourse properties)



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Resumption and long-distance wh-movement in Likpakpaanl

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1 Introduction

Resumptive pronouns (RP) represent a common strategy in long-distance dependencies such as relativisation and long-distance wh-movement across languages (Shlonsky 1992). The distribution of resumptives varies cross-linguistically because some languages, like Palestinian Arabic, use them interchangeably with gaps created by wh-movement, while others, like Irish (McCloskey 1990, 2002) and Vata (Koopman 1984), employ resumptive pronouns in syntactic positions where gaps are expected after elements are moved. Despite much interest in the interaction between resumption and wh-movement cross-linguistically, it has received little investigation in Likpakpaanl. This paper has two main goals: first, to describe wh-movement in long-distance extraction, and second, to determine the relationship between resumptive pronouns and moved subject and non-subject wh-elements from embedded clauses. I also demonstrate that two reflexes accompany long-distance wh-movements, i.e. the use of either a resumptive pronoun or a trace in the base position of the wh-element. In the literature, there are two assumptions about the distribution of resumptive pronouns. One analysis holds that resumptive pronouns occur as a ‘Last-resort’ device in positions where movement is blocked, thus serving as an island obviation mechanism (McCloskey 2002). The alternative approach views resumptive pronouns as mere phonological realisations indicating traces of movement (Boeckx 2003, Aoun et al. 2001). This second view predicts that using resumptives in place of a trace in moved wh-elements should still show the effects of movement. These are summed into the classical view that A-bar dependencies can be derived either by movement leaving a gap (1-a) or by base-generation of an operator in the matrix clause, which binds a pronoun in the embedded (1-b). In base-generation approaches, the displaced DP is assumed to result from a merger in the specifier of a CP (see Shlonsky 1992, McCloskey 2002).

- (1) a. [CP, DP_i [TP . . . [. . . t_i]]] (Movement)
 b. [CP, DP_i [TP . . . [. . . pro_i]]] (Base-generation and binding)
 (Korsah and Murphy 2019: 226)

In this paper, I provide evidence from Likpakpaanl and show that long-distance wh-extraction with resumptive pronouns exhibit properties characteristic of A-bar movement using the distribution of RPs in syntactic islands. I contend that wh-movement in Likpakpaanl leaves traces when an object wh-element undergoes extraction, while a resumptive pronoun is required when a subject wh-element is A-bar moved. I propose that the complementarity of traces and resumptive pronouns in Likpakpaanl can be accounted for by assuming that there is an Extended Projection Principle (henceforth, EPP, Chomsky 1977, 1995) requirement in Likpakpaanl, the reason for which the Spec, TP position is always filled with an overt DP element. There is, thus, a blocking effect of this for local wh-subject extraction due to the Highest Subject Constraint (McCloskey 1990).

Beyond this introduction, the rest of the paper is organized as follows: Section 2 provides the basic properties of the language with a focus on morphology and word order. Section 3 introduces wh-questions in subject and non-subject sentences and in local and embedded contexts in Likpakpaanl and sets the stage for the whole discussion. Section 4 illustrates that Likpakpaanl long-distance wh-movement shows an asymmetry between subject and non-subject wh-movement where extracted wh-subjects leave a resumptive pronoun and non-subjects leave a trace in the base position. The analysis is presented in Section 5.

2 Basic structure of Likpakpaanl

Likpakpaanl (also known in the literature as 'Konkomba') belongs to the Gurma Oti-Volta branch of the North Central Mabia¹ (Gur) languages (Manessy 1971, Naden 1989). The people refer to themselves as *Bikpakpaam*, their language as *Likpakpaanl* and their land as *Kikpakpanj*. The population of Bikpakpaam stands at over 831,000 in Ghana alone and 198,000 in the Togo (Schwarz 2007). Likpakpaanl is spoken in the Eastern corridor of the Northern and North-East regions of Ghana, as well as the Northern Volta. Some specific towns of their location include Saboba (their traditional capital), Tatale, Chamba, Gushegu, Bumbon, Chereponi, Yendi, Kpassa, Damanko and some parts of the Ahafo region as well. Typologically, Likpakpaanl is an SVO language and depending on whether the verb is transitive or intransitive, a simple sentence can have

¹I use the term 'Mabia' following Bodomo (2020, 1997) to refer to over the 80 languages spoken in the Savanna grasslands and West Africa

patterns such as SVO, SV or SVA as illustrated in (2-a), (2-b) and (2-c), respectively.

- (2) a. Ponpiir bì dàà í-ŋuo.
 P. IPFV buy 6-goat
 ‘Ponpiir is buying goats.’ (SVO)

b. Irene nàn gèèn.
 I. PST sleep
 ‘Irene slept.’ (SV)

c. Ù-bò gbààn gà wìì dìn.
 1-child DEF FUT cry today
 ‘The child will cry today.’ (SVA)

In a ditransitive construction, the indirect object precedes the direct object, as (3) shows. Thus, the ungrammaticality of (3-b) occurs because the direct object immediately follows the verb.

- (3) a. Neina fè tìi Obed kì-gbáŋ.
 N. HEST.PST give O. 11-book
 'Neina gave Obed a book (yesterday).'
 b. *Neina fè tìi kì-gbáŋ Obed.
 N. HEST.PST give 11-book O.
 int.: 'Neina gave Obed a book (yesterday).'

Despite this order, information-structural-related constructions such as topicalisation and focus trigger the movement of subject, object or adjunct elements out of their canonical positions to higher projections in the left periphery of the clause. Likpakpaanl employs a noun class² system that primarily relies on class affixes, which carry additional information related to number agreement.³ While prefixes are the more prevalent choice for indicating noun class, some nouns employ circumfixes, with some Classes having only suffixes for their class assignment. There are interesting agreement patterns within the DP, as illustrated in (4), where we see agreement between the noun, the demonstrative pronoun and the numeral.

- (4) **Tì-gbàn tì-ŋmù tì-mìnà gá wɔŋ.**
 14-book 14-five 14-dem FUT lost
 'These five books will be lost.'

After providing an overview of the structure of Likpakpaanl, the following

²See Winkelmann (2012), Bisilki and Akpanglo-Nartey (2017) for a detailed account of Likpakaanl noun class systems.

³I use the class numbers (1-15) in the glossing to show whether a noun is singular or plural. Noun class agreement is also reflected in the choice of resumptive pronouns.

section will delve into how wh-questions are structured in the language, as well as the distinction between wh-questions involving subjects and those that do not.

3 Likpakpaanl wh-questions

This section examines wh-questions in Likpakpaanl in local (subject and non-subject sentences) and also in embedded constructions. I show that while wh-movement is possible in both local and non-local wh-constructions, there is an asymmetry where the extraction of a wh-phrases from the embedded subject position must be filled with a resumptive pronoun while non-subject wh-movement requires a trace.

3.1 Local subject wh-questions

In Likpakpaanl, a subject wh-element in a matrix clause cannot be focused at all, but their corresponding answers must be overtly focus-marked. Consider subject wh-phrases in the sentences in (5).

- (5) a. Dmà (*lé) nàn dàà ì-nàà gbààn?
 who FOC PST buy 4-cow DEF
 'Who bought the cows?'
 b. John *(lé) nàn dàà ì-nàà gbààn.
 J. FOC PST buy 4-cow DEF
 'JOHN bought the cows.'
 c. ?John nàn dàà ì-nàà gbààn.
 J. PST buy 4-cow DEF
 'JOHN bought the cows.'

Apart from the 'who' wh-phrase, the example in (6-a) further demonstrates that the subject wh-phrase *bà* 'what' cannot also be overtly marked by the focus particle, while the answer needs to be overtly focus-marked for the sentence to be grammatical.

- (6) a. Bà bì lìr kì-dìì-k gbààn nì?
 what IPFV fall 11-room-11 DEF in
 'What is falling in the room?'
 b. ì-nù lé bì lìr kì-dìì-k gbààn nì.
 8-yam FOC IPFV fall 11-room-11 DEF in
 'YAM is falling in the room?'
 c. ?ì-nù bì lìr kì-dìì-k gbààn nì.
 8-yam IPFV fall 11-room-11 DEF in
 'YAM is falling in the room?'

The data in (5) and (6) show an asymmetry between subject wh-phrases, where the subject wh-element is not focus-marked (even optionally), but the answer is required to be obligatorily marked with the morphological focus particle *lé* else the sentence will be just a declarative statement and not a response to the wh-question as (5-c) and (6-a) show. The absence of the morphological focus particle in subject wh-phrases in Likpakpaanl in matrix questions suggests that they are base-generated in Spec-TP as shown by the lack of focus particle. I assume subject wh-phrases and, by extension, in-situ wh-questions in Likpakpaanl are licensed via Agree with the focus particle in projecting higher in the left periphery. Chomsky has proposed that the rule that establishes agreement (Agree) is a component of movement and contends that that agreement is the consequence of a bi-conditional situation in which an unvalued instance of feature F c-commands another instance of a valued F as illustrated in (7).

(7) **Agree Chomsky (2001, 2000)**

- a. An unvalued feature F (a probe) on a head H scans its c-command domain for another instance of F (a goal) with which to agree.
- b. If the goal has a value, its value is assigned as the value of the probe.
- c. A feature F is uninterpretable iff F is unvalued.

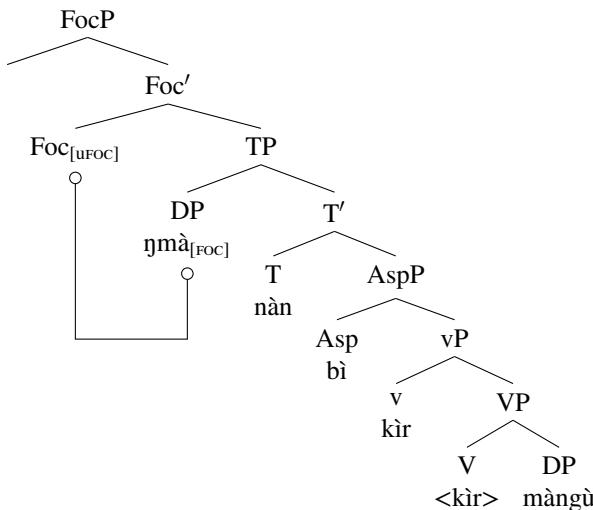
According to Chomsky (2001), syntactic derivations converge if uninterpretable [uF] features are valued (under Probe-Goal relationship), and after valuation, they are deleted. Adopting the feature checking theory of Chomsky (2001, 2000), I also assume the projection of focus phrase (FocP) in the left periphery of the clause in line with Rizzi (1997). The Likpakpaanl wh-phrase has an interpretable focus feature [iF], while the focus projection in the left periphery has an uninterpretable focus feature [uF] and an EPP feature in the case of ex-situ wh-movement. Using the sentence in (8), I assume that the wh-phrase *ŋmà* with its [iF] features serves as a Goal for the [uF]-features on the Foc (Probe) to establish an Agree relationship with. The [uF] features are checked and deleted. The derivation of in-situ wh-questions is illustrated in (9)⁴.

(8) **In-situ local subject focus**

ŋmà nàn bì kìr màngù?
what PST IPFV pluck 4-mango
'Who was plucking a mango?'

⁴I also assume a similar Agree mechanism in the derivation of in-situ non-subject wh-questions in Likpakpaanl

(9)



3.2 Local non-subject wh-questions

Having looked at subject wh-questions, let us also consider the distribution of non-subject wh-phrases in the language. The data indicates that Likpakpaanl non-subject wh-elements in matrix clauses can be realised either in their canonical positions (10-a) or moved to the left periphery of the clause (11-a). Thus, if an object wh-question like (10-a) is asked, the answer can occur in in-situ (10-b) where the focus constituent in its canonical position is followed by *là* (10-b) or *lè* (11-b). It can also be fronted to the left periphery, as in (11-c).⁵

(10) In-situ local non-subject focus

- a. Mpòpiìn nàn dàà bà?
M. PST catch what
'What did Mpòpiìn buy?'
- b. Mpòpiìn nàn dàà ì-nà là.
M. PST buy 6-cow FOC
'Mpòpiìn bought COWS.'

The data in (11-a) show the A-bar movement of the wh-element *bà* 'what', as the direct object selected by the verb, to the Specifier of the focus phrase in the left periphery of the clause.

⁵The choice of **là** or **lè** is dependant on whether the focus particle is followed by an overt constituent or not. The former is used when a focal element occurs in clause-finally while the latter occurs clause medially with other elements following it (see Mursell et al. 2022).

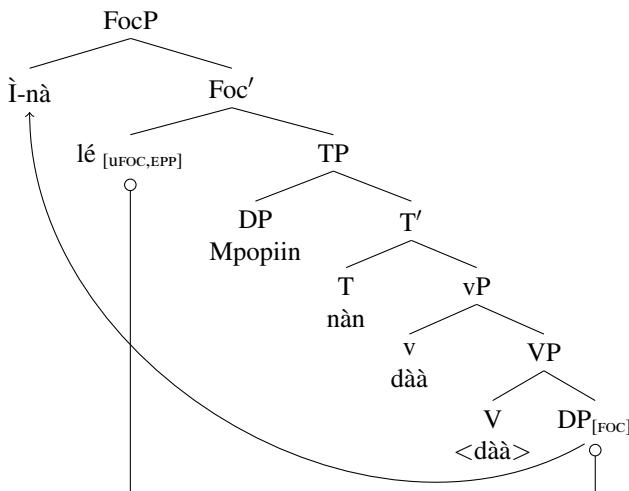
(11) Ex-situ non-subject focus

- a. Bà_i lé Tamanja nàn chùù t_i lì-mùà-1 gbààn nì?
what FOC T. FUT catch 5-river-5 DEF in
'What did Tamanja catch in the river?'
- b. Tamanja nàn chùù lì-jàn lè lì-mùà-1 gbààn nì
T. FUT catch 6-fish FOC 5-river-5 DEF in
'Tamanja caught FISH in the river.'
- c. lì-jàn_i lé Tamanja nàn chùù t_i lì-mùà-1 gbààn nì
6-fish FOC T. PST catch 5-river-5 DEF in
'Tamanja caught FISH in the river.'

Using the example in (11-a), I argue that in non-subject wh-phrase, the derivation proceeds as follows. The verb chùù 'catch' merges with its wh-object complement *bà* 'what' and the adjunct to form the VP. Adopting the feature checking theory of Chomsky (1995, 2000), I assume that ex-situ wh-movement is derived in two steps: in the first step, the Probe (*iF*) on FocP searches its C-command domain for a Goal with a matching feature and find the wh-element. An agree relation is established, and the features are valued and deleted. In the second phase, the EPP feature on Foc-head triggers the extraction of the wh-phrase to Spec-FocP to check the EPP feature. The derivation of the sentence in (12) is represented in (13).

- (12) lì-nà_i lé Mpòpiin nàn dàà t_i.
6-cow FOC M. PST buy
'Mpòpiin bought COWS.'

(13)



4 On wh-movement in Likpakpaanl

Likpakpaanl allows both partial and long-distance wh-movement (henceforth LDW), and this section discusses the distribution of subject and non-subject wh-phrases in these two constructions. Likpakpaanl embedded clauses are introduced by an obligatory overt Complementiser head *kè* 'that'. I first examine partial wh-movement and then with LDW extraction in Likpakpaanl.

4.1 Partial wh-extraction

In (14-a) and (14-b), the adjunct and object wh-phrases are moved from their base position to the Spec-FocP in the embedded CP.

- (14) a. Tanaan nàn lén [CP kè [FocP bà-dààl_i lé [TP Wumbei yòòr
T. PST say COMP what-day FOC W. take
ù-pì t_i?]]]
1-woman
'When did Tanaan say (that) Wumbei married a wife?'
b. Neina bà dàk [CP kè [FocP bà_i lé [TP Maabi fé
N. PST think COMP what FOC M. HEST.PST
gbìì t_i kì-sàà-k gbààn nì?]]]
dig 11-farm-11 DEF in
'What did Neina think Maabei dug in the farm (yesterday)?'

Even though non-subject wh-elements can undergo intermediate movement, it is impossible for subject wh-phrase to move within the embedded clause (15), suggesting that they are base-generated in Spect-TP and are only licensed by the higher FocP as shown in (9). Thus, even the presence of a resumptive in Spec-TP, in this case, does not make the sentence licit.

- (15) *Peter nàn bàè [CP kè [FocP ñmà_i (*lé) [TP ù_i pùn sìmà?]]]
P. PST ask COMP who FOC RP roast 2.groundnuts
int.: 'Who did Peter ask if he roasted groundnuts?'

4.2 Long-distance wh-extraction

In LDW extraction, both subject and non-subject wh-elements can undergo movement to FocP in the left periphery. There is, however, observed asymmetry in their derivations; the former leaves a resumptive pronoun, while the latter a gap. Consider the following examples:

- (16) **Long-distance subject wh-extraction**
a. Bà_i lé Bínlù dàk t_i kè nì_i wìì ñì-bùù gbààn?
what FOC B. think.PFV COMP 3PL break.PFV 8-pot DEF
'What does Bínlù think that (it) broke the pots?'

- b. *Bà_i lé Bínlù dàk t_i kè t_i wìi ñì-bùù gbààn?
 what FOC B. think.PFV COMP break.PFV 8-pot DEF
 int.: ‘What does Bínlù think that (it) broke the pots?’

I assume that the subject wh-phrase undergoes successive-cyclic movement through the edge of the CP to the landing site in Spec-FocP (16-a).⁶ The resumptive pronoun is obligatory in the moved subject position inside the embedded CP, and (16-b) is ungrammatical because we have a gap instead of a resumptive pronoun in the base position of the moved subject. Following Sells (1984), I argue using the example in (18-a) that the RP pronoun is bound variables with a wh-anterecedent as an operator in Spec-FocP of the matrix clause. In (17-b), the RP shows number agreement with the wh-plural antecedent ‘who’ as shown in the choice of a plural resumptive pronoun in (17-b).

- (17) a. [FocP mà_i lé [TP Kòffí lén [CP t_i kè [TP ù_i dàà
 who FOC K. say.PFV COMP RP buy.PFV
 chééché?]]]]
 4.bicycle
 ‘Who did Kofi say that (he) has bought a bicycle?’
- b. [FocP mà-màm_i lé [TP Kòffí lén [CP t_i kè [TP bì/*ù_i
 who-PL FOC K. say.PFV COMP RP
 dàà chééché?]]]]
 buy.PFV 4.bicycle
 ‘Who did Kofi say that (they) bought a bicycle?’
- c. *[FocP mà-màm_i lé [TP Kòffí lén [CP t_i kè [TP t_i dàà
 who-PL FOC K. say.PFV COMP buy.PFV
 chééché?]]]]
 4.bicycle
 int.: ‘Who did Kofi say that (they) bought a bicycle?’

Contrary to what we see in subject-extraction, non-subject wh-elements leave traces in their base positions and not resumptives. Let us now consider the case of long-distance movement in (18-a). There is an observed asymmetry between subject and non-subject wh-elements in long-distance movement. The wh-interrogative phrase *kì-là-kì* ‘which’ with [*iF*] in (18-a) is first merged with the VP and serves as a Goal is attracted by the Probe, *Foc*⁰. Once the features on *FocP* are checked, the EPP⁷ feature on *FocP* in the second phase of the derivation triggers the A-bar movement of the focused constituent to Spec-FocP. Such A-bar movement triggers extraction of the object wh-phrase

⁶I use *t_i* to indicate the cyclic movement of the wh-element.

⁷Rizzi (2006) also proposes that movement to Spec-Foc is triggered a *Focus Criterion* (*Foc-C*), which requires that a focus-bearing element in a structure to always move to Spec-Foc

through the intermediate Spec-CP and lands in the Spec-FocP (cf. Rizzi 1997, Sabel and Zeller 2006).

(18) Long-distance non-subject wh-extraction

- a. [FocP Kì-tìŋ kì-là-kì_i lé [TP Mpopiin dàk [CP t_i 13-land-13 13-which-13_i FOC M. think
kè [TP Kunji nàn dàà t_i?]]]]]
COMP K. PST buy
'Which land did Mpopiin say (that) Kunji bought?'
- b. *[FocP Kì-tìŋ kì-là-kì_i lé [TP Mpopiin dàk [CP t_i 13-land-13 13-which-13_i FOC M. think
kè [TP Kunji nàn dàà kì_i?]]]]]
COMP K. PST buy RP
lit: 'Which land did Mpopiin say (that) Kunji bought it?'

The discussion so far has demonstrated a distinction between the use of resumptives and gaps in Likpakpaanl. But what does this tell us about such dichotomy in terms of whether both entail base-generation and binding or A bar movement? It is expected that if these two options are derived differently, we should expect differences in island-sensitivity but this is not a straightforward approach because as McCloskey (2002, 2006) argues for Irish, resumptive pronouns appear in certain positions where gaps are also grammatical, suggesting gaps result from a movement derivation, whereas resumptives such as *iad* in (19) are the result of base-generation and binding.

- (19) na hamhráin sin nach bhfuil fhios cé a chum **iad**.
the songs DEM NEG C is knowledge who c composed them
'Those songs that we don't know who composed them.'

(McCloskey 2006: 99)

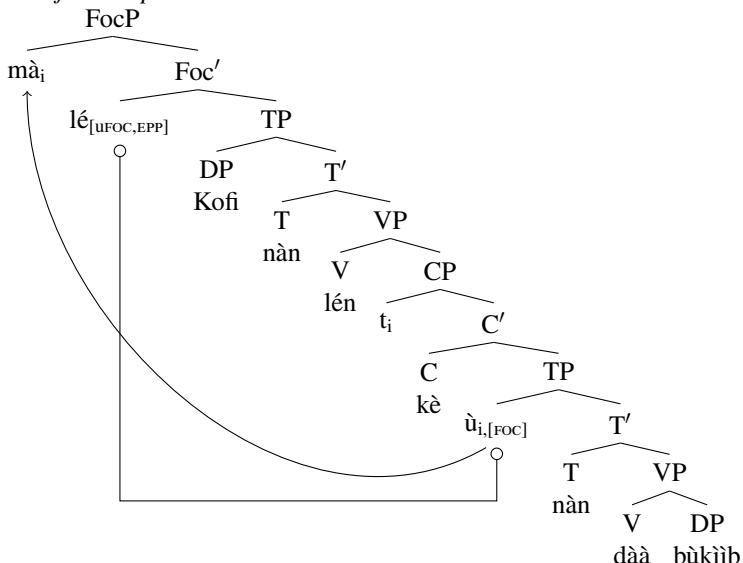
Koopman (1984) also shows that in Vata, a language of the Kru family spoken in the Ivory Coast, resumptive pronouns have the same properties as gaps but involve a movement derivation because resumptives are island-sensitivity. Similar observations have also been made in Palestinian Arabic by Aoun et al. (2001) showing resumptive pronouns and gaps alternating freely. Having examined the distribution of presumptive and gaps in Likpakpaanl long-distance wh-movement, the next section provides a syntactic analysis of the observed empirical data.

5 On the syntax of long-distance wh-extraction

The data show that whenever a wh-phrase is extracted in Likpakpaanl, it occupies Spec-FocP of the focus head *lé*. The derivation proposed here is similar to what I argued for in (13) for ex-situ wh-movement, where I proposed a Probe-Goal relationship between the moved wh-phrase and the FocP that c-commands it for feature checking and valuation to license focus interpretation of the wh-element. I also argued that FocP is endowed with an EPP feature that triggers the movement to its Specifier.

- (20) mà_i lé Kòfí nàn lén t_i kè ù_i dàà nàn bù-kìib?
 who FOC K. PST say COMP RP PST buy.PFV 9-soap?
 'Who did Kofi say (he) bought soap?'

- (21) *Subject wh-phrase extraction*



In the derived structure in (21), the assumption is that Likpakpaanl requires resumptive pronouns in embedded subject positions because it has an EPP feature that requires the subject position to be overtly filled. Due to this EPP feature, leaving a trace after extracting the embedded subject would violate the structural requirement to have an overt subject. The obligatory presence of resumptive pronouns in extracted embedded subject positions in Likpakpaanl satisfies EPP by having an overt element in the subject position. This explains why extracted embedded subjects can only bind resumptives, and not traces.

However, extracted matrix subject wh-phrases do not bind resumptive pro-

nouns but rather traces because resumptive pronouns are blocked for local/matrix subject extraction in order to comply with the Highest Subject Restriction (HSR) (McCloskey 1990, 2002).

(22) **Highest Subject Constraint** (McCloskey 1990: 77-78)

“[T]he highest subject of a clause cannot be occupied by a resumptive pronoun [...] however, resumptive pronouns appear freely in the subject position of embedded clauses, finite and non-finite.”

The asymmetry between the use of trace and resumptive pronouns can be accounted for by positing that Likpakpaanl requires resumption for extracted embedded subjects to satisfy EPP but traces for extracted matrix subjects to satisfy HSR. Resumptives and traces are mutually exclusive due to these different constraints on embedded versus matrix subjects.

The common property of the binding relations that resumptive pronouns enter into is that they show no sensitivity to general constraints on movement. Ross (1967) notes that resumption obviates island effects, such as the adjunct island violation in (23-a). Such apparent violations are repaired if the dependency ends in a resumptive pronoun (23-b).

- (23) a. *King Kong is a movie which_i you'll laugh yourself sick [CP if you see t_i]
 b. King Kong is a movie which_i you'll laugh yourself sick [CP if you see it_i]

(Ross 1967: 433)

However, in Likpakpaanl, resumptives in Likpakpaanl are island-sensitive and do not repair islands and, therefore, point to a movement approach to resumption. The A-bar dependencies in the complex noun phrase island in the presence of both resumptives (24-a) and gap (24-b) are island-sensitive in the language.

(24) *Complex Noun Phrase Constraint (CNPC)*

- a. *[FocP mà_i lè Chàtí tÙk [DP tìbɔŋyùnlkààr [CP kè [DP ù_i jùn t_i]]]?
 who FOC C. tell.PFV rumour COMP RP
 hear.PFV
 int.: ‘Who has Chatí told a rumour that he heard?’
- b. *[FocP Bà_i lè Amà ȷméé [DP kí-gbààŋ [CP kè [TP
 what FOC A. write.PFV 2-book COMP
 ù-bò kàrn nì_i/t_i]]]?
 1-child read.PFV RP
 int.: ‘What has Ama written a book that a child has read (it)?’

The CNPC imposes a constraint on movement transformations out of complex noun phrases, barring the movement of elements of relative clauses of DP islands. Thus, both presumptive and gaps do not allow movement out of a DP island (see Issah 2020, Koopman 1984, Korsah and Murphy 2019 for similar observations in Dabgani, Vata and Akan, respectively).

The use of resumptive pronouns in coordinate constructions in Likpakpaanl displays island sensitivity, as attempts to extract just one conjunct result in ungrammaticality even if a resumptive pronoun is used. Specifically, it is impossible in Likpakpaanl to move a single conjunct out of a coordinate structure - both conjuncts must undergo movement together. If only one conjunct is moved, leaving behind a resumptive pronoun in place of the other conjunct, the result is an illicit sentence (25-b). This Coordinate Structure Constraint (CSC) provides evidence that coordinate structures in Likpakpaanl constitute islands for movement operations.

(25) *Coordinate Structure Constraint*

- a. [TP Mpópíín gèè [DP Wàjà ní mà]]?

 - M. love W. CONJ who
 - ‘Who and Waja does Mpópíín love?’

- b. *[FOCP mài lé [TP Mpópíín gèè [DP Wàjà nì ù_i/t_i]]]?
who FOC M. love W. CONJ RP
int.: ‘Who does Mpópíín love Wàjà and (him/her)?’

It is not only impossible to extract from the first conjunct but also from the second conjunct, as (26-a) illustrates. Both conjuncts can, however, undergo movement as a DP constituent.

- (26)
- a. [TP Tamanja kpà [DP ì-ŋùò nì ì-gbéér]]]
T. have 4-goat CONJ 1-pig
‘Tamanja has goats and pigs?’
 - b. *[FOCP Bà_i lè [TP Tamanja kpà [DP nì_i/t_i nì ì-gbéér]]]?
what FOC T. have it CONJ 1-pig
int.: ‘What does Tamanja have (it) and pigs?’

The island sensitivity displayed by resumptive pronouns in Likpakpaanl coordinate constructions suggests they exhibit ‘gap-like’ behaviour, similar to actual gaps created by movement. Both resumptive pronouns and gaps in Likpakpaanl are subject to the same island constraints. Following Ross (1967), island effects are taken as evidence of movement. Therefore, the fact that resumptives in Likpakpaanl show island sensitivity implies their distribution involves movement, contrary McCloskey (2002), who propose that only gaps and not resumptives are island-insensitive. The parallel island behaviour of gaps and resumptives in Likpakpaanl CNPC and CSC structures support an

analysis where both involve movement rather than resumptives being inserted without movement.

- (27) *Subject wh-movement with resumption*
 $[\text{FocP } \text{wh-phrase}_i [\text{Foc } \text{lé } [\text{TP} \dots [\text{CP } t_i [\text{C } \text{kè}] \dots [\text{TP } (\text{RP})_i \dots [\text{VP} \dots \text{DP}]]]]]$
- (28) *Object wh-movement with a gap*
 $[\text{FocP } \text{wh-phrase}_i [\text{Foc } \text{lé } [\text{TP} \dots [\text{CP } t_i [\text{C } \text{kè}] \dots [\text{TP} \dots [\text{VP} \dots t_i]]]]]$

6 Conclusion

This study provided a detailed empirical description of the distributional facts relating to resumption in long-distance wh-movement in Likpakpaanl, namely that it occurs only in contexts requiring subject extraction.

I have also shown that even though Likpakpaanl has RPs for both objects and subjects, only subject RPs have an overt realisation; object RPs have a null exponent, a gap. Using island tests like CNPC and CSC, I argued that in Likpakpaanl, A-bar extractions that leave behind a trace or resumption involve syntactic movement. The use of resumption and trace in Likpakpaanl is mutually exclusive: A-bar movement of wh-objects leaves a trace, while that of subjects leaves a RP. The analysis proposes a functional projection in the left periphery of the clausal structure containing a FocP with an EPP feature. The obligatory presence of a resumptive in Spec-TP in long-distance movement with wh-subjects is assumed to be due to the presence of a strong Extended Projection Principle (EPP) feature that requires the subject position to be overtly filled. The paper contributes to linguistic typology on resumption and enriches cross-linguistic variation in this domain.

Abbreviations

1SG	first person singular	FUT	future
2SG	second person singular	HSR	Highest Subj. Restriction
3SG	third person singular	IPFV	imperfective
2PL	second person plural	LD	long distance
COMP	complementiser	NEG	negative
CONJ	conjunction	PFV	perfective marker
DEF	definite article	PST	past
EPP	Extended Projection Principle	RP	resumptive pronoun
FOC	focus particle		

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More than two infinitives in Frisian

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1 Introduction

Infinitives are non-finite verb forms, which do not carry any tense or phi-features. An example of a Dutch infinitive that is the complement of a modal verb is given in (1).

- (1) Ik kan eten.
I can eat.INF
'I can eat.' (Dutch)

Infinitives can not only be used as verbs, but they can also function as nouns. The example in (2) shows that they can combine with a determiner, which is typical for nouns.

- (2) Na het eten ben ik altijd moe.
after the eat.INF am I always tired
'I always feel satisfied after eating.' (Dutch)

In Dutch, the infinitive has the same morphological form, whether it is being used as a verb, as in (1), or as noun, as in (2). In Frisian (actually West-Frisian but Frisian for short), a minority-language spoken in the north of the Netherlands, this is different. Frisian has two morphologically distinct infinitives: one ending in *-e* (pronounced as [ə]) and one ending in *-en* (pronounced as [n]). It has been argued (cf. Visser 1989, Hoekstra 1997, Bergstra 2020) that they follow the noun-verb distinction described above and that infinitives on *-e* are verbal infinitives and infinitives on *-en* are nominal infinitives. This distribution is illustrated in (3). In (3-a), the infinitive functions as a verb as it is the complement of a modal verb. Here the verbal *-e*-infinitive is grammatical and the nominal *-en*-infinitive is not. In (3-b), the infinitive functions as a noun as it combines with a determiner. Here the nominal *-en*-infinitive is grammatical and the verbal *-e*-infinitive is not.

- (3) a. Ik kin it-e/*-en.
 I can eat-INFe/-INFeN
 'I can eat.'

- b. Nei it it-en/*-e fiel ik my altyd foldien.
 after the eat-INF_{EN}/INF_E feel I me always satisfied
 'I always feel satisfied after eating.' (Frisian)

In the examples above, the forms neatly fit their contexts: the verbal suffix *-e* appears in a verbal context and the nominal suffix *-en* appears in a nominal context. However, this is not always the case: there are infinitives on *-en* that appear in a verbal context and not in a nominal one (which has also been signaled by Hoekstra 1997). This means that a description with two infinitives does not fully capture the distribution of the infinitives. This paper argues that Frisian has at least three different types of infinitives.

The paper is structured as follows. In Section 2, I give a systemic description of the three types of Frisian infinitives. Section 3 compares Frisian to English and shows that English largely makes the same three-way distinction as Frisian does. Section 4 concludes and provides some discussion about even more contexts that infinitives appear in and more types of infinitives.

2 Frisian infinitives

This section describes Frisian infinitives in different contexts: *-e*-infinitives in a verbal context, *-en*-infinitives in a nominal context and *-en*-infinitives in a verbal context. There are numerous different contexts in which infinitives appear (see Hoekstra 2020 for an overview), and I only discuss a small portion of them. I focus on the contexts for which judgements are clear and which illustrate my point that there are at least three types of infinitives in Frisian. Other contexts do not go against the claims I make in this paper, but they complicate the picture. I briefly return to them in the discussion.

The Frisian examples in this paper represent so-called Standard Frisian, which is the variant of Frisian that is reported on in most of the literature (cf. Visser 1989, Hoekstra 1997, Bergstra 2020, Hoekstra 2020). The examples in this paper are constructed by me as a native speaker and my judgements are confirmed by other native speakers. There is variation in infinitive selection, especially among younger speakers, or speakers of so-called interference Frisian (see De Haan 1997 about interference Frisian and Bergstra 2020 for a study about this variation), which I leave aside for now. I briefly return to the topic of change and variation in the discussion.

In this section I start by discussing situations in which the forms fit their contexts. Section 2.1 describes *-e*-infinitives that appear in verbal context and *-en*-infinitives that appear in a nominal context. I consider a context to be verbal when the infinitive can take an internal argument and I consider a context to be nominal when the infinitive can be modified by a prepositional phrase with *fan*.

'of'. Section 2.2 describes situations in which forms do not fit their contexts, i.e. examples of *-en*-infinitives that appear in a verbal context. Section 2.3 summarizes and interprets the observed pattern.

2.1 Forms that fit their context

A verbal context in which the so-called verbal -*e*-infinitive appears is the one in which the infinitive is a complement of a modal verb. I repeat the example I gave in the introduction in (4). In this context, the infinitive on -*e* is grammatical and the one on -*en* is not. All modal verbs follow this pattern, so also *sille* 'will', *wolle* 'want to', *moatte* 'must' and *meie* 'may'.

- (4) Ik kin it-e/*-en.
 I can eat-INFe/-INFin
 'I can eat.' (Frisian)

Evidence for this infinitive being a verb comes from the fact that the infinitive can take an internal argument. The example in (5) shows that *ite* 'eat' can take *appels* 'apples' as an internal argument.

- (5) Ik kin appels it-e/*-en.
 I can apples eat-INFe/-INF_en
 'I can eat apples.' (Frisian)

Evidence for this infinitive not being a noun comes from the fact that the infinitive cannot be modified by a prepositional phrase with *fan* 'of'. The example in (6) shows that *ite* 'eat' cannot be modified by the prepositional phrase *fan appels* 'of apples'.

Another verbal context in which the so-called verbal -e-infinitive appears is the one in which it is a complement of the verb *litte* 'to let'. The example in (7-a) shows that here the infinitive on -e is grammatical and the one on -en is not. The example in (7-b) shows that the infinitive can take an internal argument, indicating that the infinitive is a verb. The example in (7-c) shows that the infinitive cannot be modified by a prepositional phrase with *fan* 'of', indicating that it is not a noun.

- (7) a. Ik lit dy it-e/*-en.
 I let you eat-INFE/-INF_e
 'I let you eat.'

- b. Ik lit dy appels it-e/*-en.
 I let you apples eat-*INF_e*/-*INF_{en}*
 'I let you eat apples.'
- c. *Ik lit dy it-e/-en fan appels.
 I let you eat-*INF_e*/-*INF_{en}* of apples
 intended: 'I let you eat apples.' (Frisian)

In sum, modal verbs and the verb *litte* 'to let' take verbal complements and they require the *-e*-infinitive, confirming the verbal status of the *-e*-infinitive.

I discuss one nominal context in which the so-called nominal *-en*-infinitive appears. This is the context in which the infinitive combines with a determiner. The example in (8-a) shows that here the infinitive on *-en* is grammatical and the one on *-e* is not. The example in (8-b) shows that the infinitive cannot take an internal argument, indicating that the infinitive is not a verb.¹ The example in (8-c) shows that the infinitive can be modified by a prepositional phrase with *fan* 'of', indicating that it is a noun.

- (8) a. Nei it it-en/*-e fiel ik my altyd foldien.
 after the eat-*INF_{en}*/-*INF_e* feel I me always satisfied
 'I always feel satisfied after eating.'
- b. *Nei it appels it-en/-e fiel ik my altyd foldien.
 after the apples eat-*INF_{en}*/-*INF_e* feel I me always satisfied
 intended: 'I always feel satisfied after eating apples.'
- c. Nei it it-en/*-e fan appels fiel ik my altyd foldien.
 after the eat-*INF_{en}*/-*INF_e* of apples feel I me always satisfied
 'I always feel satisfied after eating apples.' (Frisian)

In sum, determiners take nominal complements and they require the *-en*-infinitive, which confirms the nominal status of the *-en*-infinitive.

2.2 Forms that do not fit their context

In this section, I discuss examples that go against the general pattern I described so far. I give two contexts in which the *-en*-infinitive does not appear in a

¹The example in (8-b) becomes grammatical when the plural morpheme of the internal argument is left out and the noun is incorporated, as shown in (i).

- (i) Nei it appelit-en/*-e fiel ik my altyd foldien.
 after the apple eat-*INF_{en}*/-*INF_e* feel I me always satisfied
 'I always feel satisfied after apple-eating.' (Frisian)

This is a type of noun incorporation: the noun *appel* 'apple' is non-referential and it is unclear whether it is only one or more than one apples that are being eaten (see Dyk 1997). Since noun incorporation is grammatical for all examples given in this paper, it does not help with distinguishing the different types of infinitives and I leave it aside.

nominal context but in a verbal one.

One verbal context in which the so-called nominal *-en*-infinitive appears is the one in which the infinitive is a complement of a perception verb, such as *hearre* 'to hear'. The example in (9-a) shows that here the *-en*-infinitive is grammatical and the one *-e*-infinitive is not. The example in (9-b) shows that the infinitive can take an internal argument, which indicates that it is a verb. The example in (9-c) shows that the infinitive cannot be modified by a prepositional phrase with *fan* 'of', which indicates that it is not a noun. This is surprising, because the *-en*-infinitive is generally described as the nominal infinitive, but (10-b) and (10-c) show that the infinitive shows properties of a verb and not of a noun. Other perception verbs, such as *sjen* 'to see' and *fiel* 'to feel' follow this pattern too.

- (9) a. Ik hear de minsken it-en/*-e.
 I hear the people eat-INF_{en}/-INF_e
 'I hear the people eating.'
 b. Ik hear de minsken appels it-en/*-e.
 I hear the people apples eat-INF_{en}/-INF_e
 'I hear the people eating apples.'
 c. *Ik hear de minsken it-en/-e fan appels.
 I hear the people eat-INF_{en}/-INF_e of apples
 intended: 'I hear the people eating apples.' (Frisian)

A second verbal context in which the so-called nominal *-en*-infinitive appears is the one in which the infinitive is a complement of an aspectual verb, such as *bliuwe* 'to keep'. The example in (10-a) shows that in this context, the infinitive on *-en* is grammatical and the one on *-e* is not.² The example in (10-b) shows that the infinitive can take an internal argument, which indicates that it is a verb. The example in (10-c) shows that the infinitive cannot be modified by a prepositional phrase with *fan* 'of', which indicates that it is not a noun. Again, this is surprising, because the infinitive has the form of a nominal element but it behaves like a verbal element. Other aspectual verbs, such as *gean* 'to go', *kom* 'to come' follow this pattern too.

²Some speakers only allow posture verbs as complement of aspectual verbs. They would judge the example in (10-a) as ungrammatical, but they would accept (i).

- (i) Ik bliuw rinn-en/*-e.
 I keep walk-INF_{en}/-INF_e
 'I keep walking.' (Frisian)

I keep the example with non-posture verb in the main text to make the differences between the examples sentences as small as possible.

- (10) a. Ik bliuw it-en/*-e.
 I keep eat-INF_{en}/-INFE
 'I keep eating.'

b. Ik bliuw appels it-en/*-e.
 I keep apples eat-INF_{en}/-INFE
 'I keep eating apples.'

c. *Ik bliuw it-en/-e fan appels.
 I keep eat-INF_{en}/-INFE of apples
 intended: 'I keep eating apples.' (Frisian)

Bergstra (2020) argues that infinitives that are complements of perception verbs and aspectual verbs should be analyzed as nominal infinitives. She shows that both verb types have lexical counterparts that can select for non-verbal elements, which are nouns in the case of perception verbs, as shown in (11-a), and prepositional phrases in the case of aspectual verbs, shown in (11-b).

- (11) a. Ik hear dy.
 I hear you
 'I hear you.'
 b. Ik bliuw yn Fryslân.
 I stay in Fryslân
 'I'm staying in Fryslân.' (Frisian)

Bergstra (2020) argues that although this is not direct evidence for the infinitive being nominal, the infinitive should be analyzed as such. I argue against this position. Perception verbs and aspectual verbs may have lexical counterparts that can combine with non-verbal elements as in (11), but in the versions in which they appear in (9) and (10), they require a complement which is not clearly prepositional or nominal. I analyze the infinitives in (9) and (10) as verbal elements, which is supported by the fact that the infinitives allow for internal arguments but not for *fan* 'of' prepositional phrases.

In sum, perception verbs and aspectual verbs take verbal complements but they require the *-en*-infinitive, so the infinitive behaves like a verbal element but it has the form of a nominal element.

2.3 Three types of infinitives

Table 1 summarizes Sections 2.1 and 2.2.

The left column shows the different contexts and the top row gives the two tests that distinguish nouns from verbs. The table shows three different types of infinitives: (i) infinitives that are the complement of modal verbs or the complement of *litte* 'to let' and behave like verbs because they allow for internal arguments and not like nouns because they do not allow for modification by a

	internal argument	<i>fan</i> 'of'-clause
complement of modal verb	-e	*
complement of <i>litte</i> 'let'	-e	*
combining with determiner	*	-en
complement of perception verb	-en	*
complement of aspectual verb	-en	*

Table 1: Frisian infinitives in five contexts

fan 'of' clause, and take the -e suffix, (ii), the infinitive that combines with the determiner and behaves like a noun because it allows modification by a *fan* 'of' clause and not like a verb because it does not allow for internal arguments, and takes the -en suffix, and (iii) infinitives that are the complement of aspectual verbs or the complement of perception verbs and behave like verbs because they allow for internal arguments and not like nouns because they do not allow for modification by a *fan* 'of' clause, and take the -en suffix.

In other words, the data I presented show that Frisian has three types of infinitives. I conclude from this that Frisian has three suffixes that combine with a stem: a verbal suffix -e, a nominal suffix -en and a verbal suffix -en.³ The first two suffixes have been distinguished in most of the literature on Frisian so far (cf. Visser 1989, Hoekstra 1997, Haan 2010, Bergstra 2020, Hoekstra 2020), the existence of a second type of -en infinitive has also been brought up by Hoekstra (1997). I summarize the division in three types of infinitives in Table 2.

	context	Frisian
verbal INF 1	complement of <i>let</i>	-e
	complement of modal verb	-e
verbal INF 2	complement of perception verb	-en
	complement of aspectual verb	-en
nominal INF	combining with determiner	-en

Table 2: Three types of infinitives in Frisian

It follows from this division that the distinction between verbal and nominal is not sufficient to describe the different infinitive types in Frisian. Both verbal INF 1 and verbal INF 2 require verbal complements that can take internal argu-

³Another possibility is that there is only a single suffix -en, which combines with different stems: a verbal one and a nominal one. I leave it for future research to find out which of the two possibilities is correct. For this paper I continue the reasoning assuming that there are two -en-suffixes.

ments, but only one of them (i.e. verbal INF 1) takes the *-e*-suffix and the other one (i.e. verbal INF 2) takes the *-en*-suffix. Sentences become ungrammatical when the other suffix is used.

In terms of formal features, one could phrase the situation as follows: Frisian distinguishes three types of suffixes that combine with a stem to form an infinitive. This means that all three suffixes have their own feature specification. However, the three suffixes also share some properties with each other. Two of them have properties of verbs (verbal INF 1 and verbal INF 2), and one of them has properties of a noun (nominal INF). Two of them (verbal INF 2 and nominal INF) have the same morphological form, one of them has a different form (verbal INF 1). The shared properties of the suffixes should not be a coincide but they should follow from their feature specification.

3 A similar pattern in English

In the previous section I showed that Frisian distinguishes three types of infinitives, which I illustrated with examples with different contexts. In this section I discuss the same contexts for English as I did for Frisian. It turns out that English generally shows a similar pattern. It distinguishes three types of infinitives: a verbal bare infinitive, a verbal *-ing*-infinitive and a nominal *-ing* infinitive.⁴ In this paper, I only discuss the English counterparts of the Frisian examples given in the paper. Needless to say, much more has and can be said about English infinitives and *-ing*-forms (cf. Reuland 1983, Duffley 2006, 2016).

I start with the modal verbs. In this context, Frisian uses the verbal *-e*-infinitive. In (12), I give examples with the modal verb *can*. The example in (12-a) shows that the bare infinitive *eat* is grammatical and the *-ing*-infinitive *eating* is not. The infinitive behaves like a verb because it can take an internal argument (see (12-b)) and it cannot be modified by a prepositional phrase with *of* (see (12-c)).⁵

- (12) a. I can eat(*-ing)
b. I can eat(*-ing) apples
c. *I can eat(-ing) of apples (English)

The next context is the one in which the infinitive is the complement of the

⁴The English examples are verified by a native speaker (of southern British English), Katherine Walker, who I thank for that.

⁵The modal verbs *will*, *must* and *may* also follow the pattern as in (12). The English counterpart of the Frisian *wolle*, which is *want to* is different. As is already apparent from the translations, this verb requires *to* and can then take an internal argument. I briefly return to *to*-infinitives in the discussion.

verb *let*. Just as for modal verbs, Frisian uses the verbal -*e*-infinitive in this context and it allows for internal arguments. The example in (13-a) shows that in English the bare infinitive is again grammatical and the -*ing*-infinitive is not. The infinitive behaves like a verb because it can take an internal argument (see (13-b)) and it cannot be modified by a prepositional phrase with *of* (see (13-c)).

- (13) a. I let you eat(*-ing)
b. I let you eat(*-ing) apples
c. *I let you eat(-ing) of apples (English)

Summing up, in the contexts in which Frisian uses the verbal -e-infinitive, English uses the verbal bare infinitive.

In the next context, the determiner combines with the infinitive. Here, Frisian uses the nominal *-en*-infinitive. English does not easily allow for infinitives to combine with determiners. Examples often require contexts to make them sound acceptable. The example in (14) shows that the *-ing*-infinitive is grammatical and the bare infinitive is not.

- (14) Context: On Saturdays I always exercise and then afterwards I eat a lot. After the exercising I feel tired, but..
after the eat*(ing) I always feel satisfied. (English)

The infinitive behaves like a noun because it cannot take an internal argument (see (15-a)) and it can be modified by a prepositional phrase with *of* (see (15-b)).

- (15) Context: On Sundays, I always eat lots of fruit: sometimes I have bananas and sometimes I eat apples. After the eating of bananas I mostly feel very full, but..

 - a. *After the apples eat(-ing) I always feel satisfied.
 - b. After the eat*(-ing) of apples I always feel satisfied. (English)

To sum up, in the context in which Frisian uses the nominal *-en*-infinitive, English uses the nominal *-ing*-infinitive.

The next context is the one in which the infinitive is the complement of a perception verb. In this context, Frisian uses the verbal *-en*-infinitive. The example in (16-a) shows that in English, both the bare infinitive and the *-ing*-infinitive are grammatical. The infinitive behaves like a verb because it can take an internal argument (see (16-b)) and it cannot be modified by a prepositional phrase with *of* (see (16-c)). Other perception verbs, such as *see* and *feel* also follow this pattern.

- (16) a. I watch people eat(-ing).

- b. I watch people eat(-ing) apples.
 c. *I watch people eat(-ing) of apples. (English)

The final context to be discussed is the one in which the infinitive is the complement of an aspectual verb. Just as with perception verbs, Frisian uses the verbal *-en*-infinitive. The example in (17-a) shows that here, the *-ing*-infinitive is grammatical and the bare infinitive is not. The infinitive behaves like a verb because it can take an internal argument (see (17-b)) and it cannot be modified by a prepositional phrase with *of* (see (17-c)). The aspectual verbs *go* and *come*, which in Frisian follow the same pattern as *keep*, behave differently in English and I leave them out of the discussion.

- (17) a. I keep eating/*eat.
 b. I keep eating/*eat apples.
 c. *I keep eating/eat of apples. (English)

Summing up, in the contexts in which Frisian uses the verbal *-en*-infinitive, English uses the verbal *-ing*-infinitive. For perception verbs, English can also use the verbal bare infinitive.

Table 3 summarizes the pattern for English and compares it to the Frisian one.

infinitive	context	Frisian	English
verbal INF 1	complement of <i>let</i>	<i>-e</i>	Ø
	complement of modal verb	<i>-e</i>	Ø
verbal INF 2	complement of perception verb	<i>-en</i>	Ø/ <i>-ing</i>
	complement of <i>keep</i>	<i>-en</i>	<i>-ing</i>
nominal INF	combining with determiner	<i>-en</i>	<i>-ing</i>

Table 3: Three types of infinitives in Frisian and English

In short, the data from English largely seem to confirm the distinctions we see in Frisian. Where Frisian uses the *-e*-infinitive, English uses the bare infinitive, and where Frisian uses the *-en*-infinitive, English uses the *-ing*-infinitive. Just as the Frisian *-en*-infinitive, the English *-ing*-infinitive comes in two flavours: one in which it behaves like a nominal element (combining with a determiner) and one in which it behaves like a verbal element (when it is the complement of perception verbs or the aspectual verb *keep*). English differs from Frisian in that perception verbs in English can take, besides the *-ing*-infinitive, also the bare infinitive as its complement. At this point, it is hard to tell whether this is true optionality or whether there is a difference between the two forms.

4 Conclusion and discussion

It has been argued that Frisian has two types of infinitives: a verbal *-e*-infinitive and a nominal *-en*-infinitive (Visser 1989, Hoekstra 1997, Bergstra 2020). In this paper I have shown that there is a third type of infinitive, which is a verbal *-en*-infinitive. This verbal *-en*-infinitive takes the *-en* suffix like the nominal *-en*-infinitive does and it can take internal arguments like the verbal *-e*-infinitive does. English largely seems to make the same distinctions: besides having a verbal bare infinitive and a nominal *-ing*-infinitive, it also has a verbal *-ing*-infinitive.

There is a lot more to say about (Frisian) infinitives, as they appear in numerous other contexts besides those described in this paper. This does not change anything about the main point of the paper, which is that there are at least three different types of infinitives in Frisian. It only shows that the picture is more complicated than I presented so far. In what follows, I discuss a few topics of interest for further research.

First, infinitives can appear bare, either as subject, as object or following a preposition. Interestingly, most speakers allow both *-e*-infinitives and *-en*-infinitives to appear in these positions. Judgement about whether infinitives allow for internal arguments or modification by *fan* 'of' phrases vary across speakers. Future research should determine the nature of these types of infinitives.

Second, there is the issue of the *te* 'to'-infinitive. The Frisian *-en*-infinitive also appears following *te* 'to', as shown in (18). This infinitive cannot take an internal argument and it cannot be modified by a *fan* 'of' prepositional phrase (see (18-a)). However, it is possible is for the *to*-infinitive as a whole to take an internal argument, as shown in (18-b).

- (18) a. Ik begin te (*appels) it-en (*fan appels).
 I begin to apples eat-INF_{EN} of apples
 'I begin to eat.'
 b. Ik begin (appels) te it-en.
 I begin apples to eat-INF_{EN}
 'I begin to eat apples.' (Frisian)

This suggests that *te INF-en* is fourth type of infinitive in Frisian, which has also been suggested by Hoekstra (1997).⁶ The English infinitive that follows *to* is the bare infinitive and not the *-ing*-infinitive, as shown in (19).

- (19) I begin to eat(*-ing) (apples). (English)

Interestingly, this is a context in which Frisian and English do not select the cor-

⁶Interesting variation regarding *to*-infinitives also exists within variants of German (see Kolmer and Weiß 2003).

responding morphological forms, i.e. English does not use the *-ing*-infinitive where Frisian uses the *-en*-infinitive.

As I final point, as I mentioned in the paper, there is variation between speakers regarding which infinitive they use in which context (see Bergstra 2020). Possibly, speakers could re-regularize infinitives in one of two different ways: (i) the verbal *-en*-infinitive changes into the *-e*-infinitive, giving speakers a single morphological form to express a verbal infinitive, or (ii) the verbal infinitive *-e* changes to *-en*, giving speakers only a single morphological form for all infinitives, like the situation currently is in e.g. Dutch. Future research should determine whether this prediction is indeed borne out.

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How dost thou and thy master agree?: (Un)resolved agreement with conjoined subjects in German

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1 Introduction

In many languages, conjoined subjects with conflicting features for person and number lead to agreement problems and a large amount of inter- and intra-speaker variation, even to the point where speakers do not seem to be able to provide consistent judgments (cf. Morgan and Green 2005 on English, Fuß 2018 on German, Himmelreich and Hartmann 2023 on disjunctive coordination in German). There are two basic strategies to determine verbal inflection in these cases: The verb may agree with only one of the conjoined DPs as in (1-a), or a single combined value may be composed of the conflicting values (by so-called resolution rules, Corbett 1983, 2000) as shown in (1-b).¹

- (1) a. How **dost** [thou and thy master] agree?
how do.2SG you and your master agree
(Shakespeare, *The Merchant of Venice*)

¹Katharina and I met for the first time more than 30 years ago when we both started our respective new positions at the University of Frankfurt – she as *Wissenschaftliche Mitarbeiterin* and I as a student assistant. Since then, many things have changed (as is to be expected from the perspective of a historical linguist), but there is one lasting impact of this early and formative part of our respective careers for which I will always be grateful – Katharina introduced me to 60s/70s linguistics and the notion that the study of language is not only about data and formal theories, but can be a lot of fun, too. So I gladly contribute this paper to this collection with the small provision that in my mind, at least, it will always be a festschrift presented to Katharina on her 33rd or 34th birthday. I would also like to thank Patrick Brandt, Fabian Heck, Anke Himmelreich, Benjamin L. Sluckin, and audiences at the Universities of Frankfurt and Mannheim for helpful remarks and discussion of the material presented here. As always, all remaining errors are entirely mine.

- b. How do [thou and thy friends] manage respecting a pulpit?
 how do.PL you and your friends manage respecting a pulpit
(The British Friend 8: 254, 1850)

Resolution rules typically lead to plural agreement, while person agreement is determined by the hierarchy $1 > 2 > 3$ (i.e., $1 + 2/3 = 1$; $2 + 3 = 2$). The choice between resolution and single conjunct agreement (SCA) is often sensitive to linear order. In many languages, SCA becomes available or is even the preferred choice when the verb precedes the conjoined subject (giving rise to first conjunct agreement, FCA; cf. e.g. Aoun et al. 1994 on Arabic, Munn 1999 on English, van Koppen 2005 on varieties of Dutch, Nevins and Weisser 2019 for an overview). More generally, it has been noted that SCA/FCA is subject to adjacency effects, i.e., there is a tendency for the verb to agree with the closest conjunct (closest conjunct agreement (CCA), Corbett 2000, Morgan and Green 2005, Nevins and Weisser 2019).

While relevant phenomena have attracted quite some attention in the typological and theoretical literature, nothing much is known about their historical development (see Behaghel 1928: 45f. for some brief remarks). In this paper, I would like to take a first step towards closing this gap by investigating the diachrony of conjoined subject agreement (CSA) in German, focusing on cases where a 2sg subject is conjoined with a 3rd person form. It is shown that the present-day system (variation between (i) 2pl (ii) 3pl, and (iii) FCA/2sg in inversion contexts) has developed quite recently (roughly between 1700 and 1900), while earlier stages exhibited a stronger preference for SCA, including cases of ‘distant conjunct agreement’ as in (2), which are quite marginal in the modern language.

- (2) ...um viel geistliche Früchte zu tragen, an denen [du und dein
 for much spiritual fruit to bear in which you and your
 himmlischer Vatter] Lust haben mögest
 heavenly father delight have may.2SG
 ‘to bear much spiritual fruit in which you and your heavenly Father
 may delight’ (Samuel Lutz: Ein Wohlreichender Straus Von schönen
 und gesunden Himmels-Blumen, 1736)

The paper is structured as follows. Section 2 gives a brief overview of conjoined subject agreement (CSA) in Modern German (MG), including a set of marginal patterns that have not attracted much attention in the literature. Section 3 tracks the development of CSA in the history of German, based on a set of corpus studies in the DTA (*Deutsches Textarchiv*) and the reference corpora of historical German. Section 4 sketches a theoretical analysis of the findings based on the idea that synchronic and diachronic variation in connection with

CSA is the result of competing repair strategies that patch up the output of the syntactic derivation before the relevant agreement features can be realized by late insertion of a matching inflection/vocabulary item. Section 5 wraps up and presents a brief summary.

2 Modern German

2.1 Agreement variation with conjoined subjects: major patterns

In cases where a 2sg subject is conjoined with a 3rd person subject, MG exhibits variation between three basic agreement patterns (cf. Fuß 2018 for details; see Section 2.2 for additional but somewhat exceptional options): 2pl, 3pl, and 2sg/FCA:²

- (3) a. [du und deine angeblichen linguisten] **äussert** euch auch
you and your alleged linguists express.2PL yourself also
so gut wie [nie] zu irgendwelchen fakten
as good as never to any facts
'You and your alleged linguists hardly ever say anything about any facts.'
(WDD13/F13.52375: Diskussion:Florina)
- b. Ich wundere mich immer wieder, dass [du und Jim] euch
I wonder myself always again that you and Jim yourself
nicht **verstehen**!
not understand.3PL
'I'm always amazed that you and Jim don't get along!'
(WDD13/I17.33247: Diskussion:Immer wieder Jim)
- c. **Hast** [du und deine Mitstreiterinnen] überhaupt gelesen
Have.2SG you and your fellow-campaigners even read
um was es geht?
about what it goes
'Have you and your fellow campaigners even read what it's about?'
(WDD13/H76.14109: Diskussion:Häusliche Gewalt/Archiv/2)

The option that is expected by the person hierarchy (2pl) is also favored by descriptive grammars of German (cf. e.g. Wöllstein 2022: 127-128). However, it has been noted that many speakers actually prefer 3pl over 2pl, in particular if the 3rd person conjunct is a plural form (cf. Corbett 1983).³ This observation

²The examples from present-day German are taken from Fuß (2018), a study based on Wikipedia discussions, a subcorpus of the German reference corpus (DeReKo 2023) where conjoined subjects are more frequent than in other text types (859 cases conjoined by ‘and’ or ‘or’ in the Wikipedia 2013 (WDD13) corpus).

³Corbett (1983) attributes this tendency to wide-spread syncretism of 2pl and 3sg verb forms (e.g. *sie/ihr lacht* ‘she/you2PL laughs’), which leads speakers to choose an option that unambiguously signals plural.

is corroborated by the quantitative findings of the corpus study conducted by Fuß (2018), see Table 1.⁴

Conjunct type	2pl	3pl	2sg	3sg	Total
2sg ‘and’ 3sg	95 (35.9%)	114 (43%)	43 (16.2%)	13 (4.9%)	265
2sg ‘and’ 3pl	23 (11.6%)	143 (72.2%)	32 (16.2%)	0	198
3sg ‘and’ 2sg	21 (28.8%)	51 (69.9%)	0	1 (1.3%)	73
3pl ‘and’ 2sg	0	0	0	0	0

Table 1: Agreement with conjoined subjects in the WDD13 subcorpus of DeReKo

In WDD2013, 2sg agreement is only attested when *du* ‘you’ is the first conjunct. The option is particularly common in inversion contexts, where it is even more frequent than other agreement patterns, accounting for more than half of all cases. Moreover, roughly 3/4 of all 2sg cases are found with postverbal subjects as shown in Table 2.

Inversion	2sg	Other Agr options
yes	57 (52.3%)	52 (47.7%)
no	18 (4.2%)	409 (95.8%)

Table 2: The impact of word order (inversion) on agreement choices in WDD13

2.2 Exceptional patterns: 2sg without inversion and 3sg

In addition to the major patterns described in the previous section, there are two somewhat exceptional options that are rarely discussed in the literature and are sometimes dismissed as performance errors (cf. Fuß 2018), namely 2sg agreement without inversion as in (4a), and 3sg (only found in cases where ‘you’ is combined with a 3sg form) as illustrated in (4b).

- (4) a. Was [du und deinesgleichen] als “seriös” **betrachtest**, kann
 what you and your-kind as reputable consider.2SG can
 ich mir lebhaft vorstellen.
 I me vividly imagine
 ‘What you and your kind consider ‘reputable’ I can vividly imagine.’ (WDD13/A28.65153: Diskussion:Antifa/Archiv/2006)

⁴While Tables 1 and 2 are based on the same dataset as Fuß (2018), the numbers slightly differ from the previous paper due to some small corrections.

- b. Tun wir doch mal spaßeshalber so, als ob [du und das was do we after-all once for-fun so as if you and that what du schreibst] ernst zu nehmen **wäre**.
 you write serious to take were.3SG
 ‘Just for fun, let’s pretend that you and what you write should be taken seriously.’ (WDD13/F69.75386: Diskussion:Friedrich August von Hayek/Archiv/3)

Note that distant conjunct agreement as in (4-a) seems to challenge most theoretical accounts of FCA, which usually assume some mechanism to ensure that FCA is confined to orders where the verb precedes the complex subject (cf. Aoun et al. 1994, Munn 1999, van Koppen 2005: ch.2). While examples like (4-a) are quite marginal in the modern language, it will be shown below in Section 3 that they were more wide-spread in earlier stages of German, suggesting that they cannot be simply ruled out as performance errors (see Section 4 for a relevant theoretical proposal).

At first sight, examples like (4-b) might be treated as some instance of closest conjunct agreement, where the verb agrees with the linearly nearest conjunct. This option seems to be subject to a set of interesting restrictions. Upon closer inspection, it turns out that roughly half of the cases in WDD13 involve non-animate conjuncts as in (4-b). Moreover, an additional search in the German reference corpus suggests that 3sg agreement is quite regularly triggered in cases where the second conjunct is a non-referring expression, in particular in connection with quantifying expressions such as *jede(r)* ‘each’, *manch* ‘some’, *kein* ‘no’ and *niemand* ‘nobody’:⁵

- (5) Mach’ klar, warum genau [du und kein anderer] für diese make clear why exactly you and no-one else for this Firma genau der richtige Mitarbeiter ist.
 company exactly the right employee be.3SG

⁵In these cases, plural agreement is generally ruled out (2sg seems to be another option, though). In inversion contexts, 3sg seems to be impossible, while 2sg appears to be the preferred choice:

- (i) Schon aus der Beschreibung **kannst/*kann** [du und jeder andere der lesen already from the description can.2SG/can.3SG you and every other that read kann] sehen, [...] can see
 ‘Already from the description you and everyone else who can read can see [...]’ (WDD11/A02.61818: Diskussion:Ananas)

As pointed out to me by Fabian Heck (p.c.), the preference for 3sg in cases like (5) can perhaps be accounted for if we assume that relevant examples actually do not involve conjoined subjects but rather result from clausal coordination plus ellipsis. As a consequence, the (non-elided) finite verb can only agree with the closest subject (i.e., its clause mate): *warum genau du der richtige Mitarbeiter bist und kein anderer genau der richtige Mitarbeiter ist*

‘Make it clear why exactly you and no one else is exactly the right employee for this company.’ (NUN06/APR.02612 Nürnberger Nachrichten, 26.04.2006; Hilfe, ich brauche auf der Stelle einen Job! Wie bewerbe ich mich richtig)

3 Agreement with conjoined subjects in historical German

This section presents the results of a set of corpus studies in the reference corpora of historical German (ranging from Old High German (OHG) to Early New High German (ENHG)) and the DTA subcorpus of the DWDS corpus (ranging from ENHG to MG), focusing on cases where a 2sg subject is conjoined with a 3rd person form (a pronoun, or a phrasal subject) by using the coordinating conjunction *und* ‘and’.

3.1 Conjoined subject agreement: from OHG to ENHG

Given the limited size of the reference corpus of Old German (c. 650,000 words; Donhauser et al. 2018), it does not come as a surprise that a relatively rare phenomenon like CSA with a 2sg conjunct is not attested in the corpus.⁶ A subsequent search in the reference corpus of Middle High German (MHG, Klein et al. 2016), which is more than three times larger than the Old German corpus, yielded 9 relevant examples (out of 27 total hits), see Table 3.⁷

Conjunct type	2pl	3pl	2sg	3sg	Total
2sg ‘and’ 3sg	0	0	2	1	3
2sg ‘and’ 3pl	0	3	1	0	4
3sg ‘and’ 2sg	1	0	0	0	1
3pl ‘and’ 2sg	0	1	0	0	1

Table 3: Agreement with conjoined subjects in the reference corpus of MHG

Of course, it is not possible to draw any firm conclusions on the basis of just a handful of examples. Still, our data provide some suggestive clues to the situation in MHG. On the one hand, it appears that the vast majority of

⁶To retrieve all cases where a 2sg pronoun is conjoined with another nominative element, the search strings “inflection=“SG_NOM_2” & pos=“KON” & inflection=/*NOM.*/ & #1.#2 & #2.#3” and “inflection=“SG_NOM_2” & pos=“KON” & inflection=/*NOM.*/ & #2,#1 & #3.#2” were used. The searches produced no relevant examples for the combination of 2sg with a 3rd person element.

⁷The following search strings were used: “inflection=/Nom.Sg.2/ & lemma=“unte” & inflection=/*Nom.*/ & #1.#2 & #2.#3” and “inflection=/Nom.Sg.2/ & lemma=“unte” & inflection=/*Nom.*/ & #2.#1 & #3.#2”.

examples are amenable to an analysis where the verb agrees only with a single conjunct, giving rise to 2sg, 3sg or 3pl (8 of 9 cases, 88.9%).⁸ On the other, there is a tendency for the verb to show plural agreement when one of the conjuncts carries plural marking (4 of 5 cases). The examples in (6) show that the agreement controller is usually (but not always) the conjunct which is closest to the verb, including 3sg elements as in (6-c) (which bears some resemblance to the MG cases discussed in Section 2.2). In all three cases where a 2sg subject controls verbal agreement, the verb precedes the complex subject. The only clear case of resolution (giving rise to 2pl agreement) is shown in (7).

- (6)
 - a. diz hvs **bist** [u vnde dine sela].
this house be.2SG you and your soul
'This house are you and your soul.' (Salomons Haus,
_2-rhfrhess-PV-G > M337-G1 (tok_dipl 449 - 461))
 - b. daz ouge da mitte [diu unde si] mich uerwundet **habent**.
the eye where with you and they me wounded have.PL
'the eye with which you and they wounded me'
(St. Trudperter Hohelied (A), 13_1-alem-PV-X > M113y-N1
(tok_dipl 11196 - 11207))
 - c. die fridesame conscientie die [dv vnde ein ige=lich menshe]
the peaceful conscience that you and one any human
habin **sal**.
have should.3SG
'the peaceful conscience that you and every human being
should have' (Salomons Haus, 13_2-rhfrhess-PV-G >
M337-G1 (tok_dipl 8027 - 8039))
- (7) ...da [din sun inde du] **sulet** eweliche leuen
there your son and you should.2PL eternally live
'[...] where your son and you should live eternally.'
(Rheinisches Marienlob, 13_1-wmd-PV-G > M335-G1
(tok_dipl 30112 - 30124))

3.2 Conjoined subject agreement: from ENHG to MG

To track the development of conjoined subject agreement from ENHG to the present-day language, two corpus studies were conducted. A first study in the reference corpus of ENHG (Wegera et al. 2021) yielded 555 hits, which were manually narrowed down to 16 relevant examples ranging from the second half

⁸Due to the loss of person distinctions with plural forms in the Alemannic dialects (so-called *Einheitsplural*), examples like (6-b) are ambiguous. Moreover, even in dialects that maintained a distinction between 2pl and 3pl forms, examples with a 3pl subject may alternatively be analysed as cases of resolution giving rise to 3pl agreement.

of the 14th century to the second half of the 16th century, see Table 4 and the examples in (8) and (9).^{9,10}

Conjunct type	2pl	3pl	2sg	3sg	Total
2sg ‘and’ 3sg	2	1	6	0	9
2sg ‘and’ 3pl	0	2	1	0	3
3sg ‘and’ 2sg	0	2	0	0	2
3pl ‘and’ 2sg	0	1	1	0	2

Table 4: Agreement with conjoined subjects in the reference corpus of ENHG

- (8) a. das [du vnd dein Maister] verfürt vnd verlait **wirst**
that you and your master seduced and misled become.2SG
‘that you and your master are seduced and misled’ (Buch aller verbotenen Künste, 15_2-wobd_2 > F137 (tok_dipl 19947 - 19959))
- b. Werent das [alle heligen vnd du]/ **Weineten** bluotige trene nu
while that all saints and you wept.3PL bloody tears now
‘while all saints and you cried bloody tears’ (Berner Weltgerichtspiel, 15_2-wobd_2 > F096 (tok_dipl 5064 - 5075))
- (9) a. das [du vnd der michel] frisch vnd gesunt **seit**
that you and the Michel fresh and healthy are.2PL
‘that you and Michel are fresh and healthy’ (Reuchlin: Behaim, Paulus: Briefwechsel, 16_1-ofr > F317 (tok_dipl 22 - 33))
- b. [din gelltt vnd du] **sind** ewig ferflucht
your money and you are.3PL forever cursed
‘your money and you are forever cursed’
(Das Antichristdrama des Zacharias, 16_1-wobd > F102
(tok_dipl 25264 - 25276))

While the examples in (8) exhibit agreement with a single conjunct (though (8-b) could also involve resolution), (9-a) and (9-b) are unambiguous cases of resolution, in which conjoined singular subjects control 2pl (9-a) or 3pl (9-b) agreement on the verb. All in all, ENHG seems to differ from MHG in that resolution is more common (5 clear cases out of 16 examples, 31.2%, with all but one from the first half of the 16th century). But note that single conjunct agreement still seems to be the preferred option – 2sg alone accounts for half of

⁹Due to the fact that the annotations slightly differ from the MHG corpus and are less reliable, the search string had to be adjusted: “lemma=“du” & inflection=/.*Nom/ & lemma=“und” & #1_= #2 & #1^#3”.

¹⁰Note that all instances labeled “3pl” come from Western High German dialects, which have lost all person distinctions in the plural part of the verbal paradigm (*Einheitsplural*).

all cases, including 3 examples where a non-inverted verb agrees with a distant conjunct as in (8-a).

To investigate the subsequent development of this system, an additional study was conducted in the DTA (2016) subcorpus of the DWDS corpus, which covers the time period from the late 16th century to the early 20th century. The search yielded 109 relevant examples, see the breakdown in Table 5.¹¹

Conjunct type	2pl	3pl	2sg	3sg	Total
2sg ‘and’ 3sg	22	15	17	5	59
2sg ‘and’ 3pl	11	19	6	0	36
3sg ‘and’ 2sg	4	4	2	3	13
3pl ‘and’ 2sg	1	0	0	0	1

Table 5: Agreement with conjoined subjects in the DTA corpus

Again, there is a significant increase in the share of agreement choices resulting from resolution (38 cases of 2pl and 19 cases of 3pl in connection with singular conjuncts, 52.3%), which develops into the majority pattern in New High German (NHG). Moreover, the presence of a 3pl conjunct regularly triggers plural marking on the verb (31 of 37 cases, 83.8%). In contrast, singular agreement is the preferred choice in inversion contexts (16 of 19 cases, 84.2%), including three examples where the verb carries 3sg marking as in (10).

- (10) Das **weiß** [nur Allah und du].
 that know.3SG only Allah and you
 ‘Only Allah and you knows that.’
 (Karl May, Durchs Wilde Kurdistan, 1892)

A closer look at the distribution of the individual examples over time reveals that the present-day system developed between 1700 and 1900, see the plot in Figure 1, which distinguishes between inversion and non-inversion patterns and in which each dot represents a single example.

(Late) ENHG exhibits basically the same agreement options as MG, but their distribution and relative frequency differ from the present-day language. Singular agreement is robustly attested in the earlier texts (17th/18th c., 28

¹¹The following search strings were used: for cases where first conjunct is 3sg/3pl: “PPER und @du” and “NN und @du”; for cases where the first conjunct is 2sg (conducting a separate search for each part of speech): “@du und PPER/ART/NE/NN/PIAT/PIDAT/PDS/PDAT/PIS/PPOSAT/ADJA”. Note that due to wide-spread syncretism of 3sg and 2pl verb forms, a number of cases are ambiguous. I chose to annotate these cases as 2pl, apart from very few examples where the 3sg conjunct is closer to the verb and non-animate as in: *Seufzer floh'n und Thränen flossen, was noch heischt die Welt und du?* ‘Sighs fled and tears flowed, what else does the world and you want?’ (August von Platen: Gedichte, 1828)

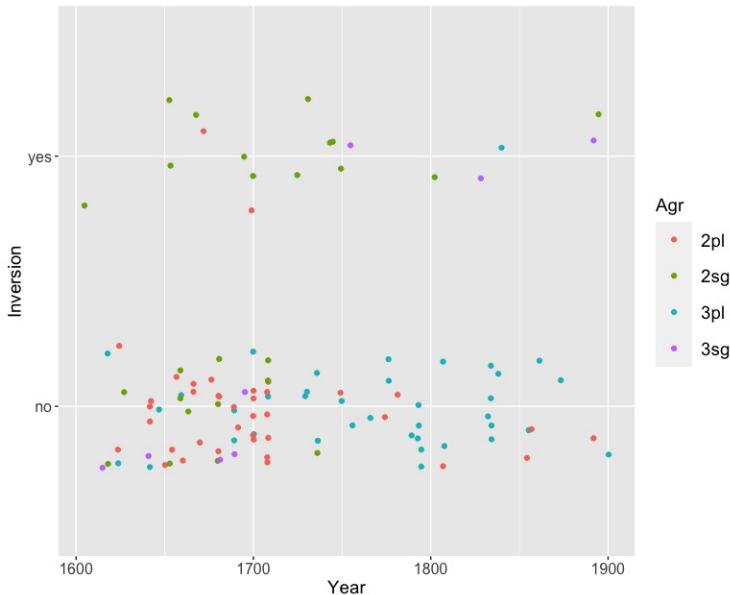


Figure 1: Agr. with conjoined subjects in the DTA corpus – distribution over time

of 87 cases (32.2%), including 10 examples with distant conjunct agreement). Later on, it is outnumbered by plural agreement (possibly due to prescriptive pressure, cf. e.g. Adelung 1782: §672, who demands that conjoined subjects trigger plural agreement on the verb, and criticizes that other grammarians accept FCA/SCA), with 3pl gaining the upper hand in the course of the 18th century. Since the 19th century, singular agreement is more or less confined to inversion contexts where the verb agrees with the closest conjunct (FCA). In other words, patterns like (2) above, where the verb agrees with a distant (2sg) conjunct, disappear from the corpus.

4 Towards a theoretical analysis – resolution as repair

The previous sections have demonstrated that conjoined subject agreement is characterized by a large amount of variation in historical stages of German, which at least in part carries over to the present-day language. While almost

all logically possible patterns are attested,¹² we have also observed a number of changes affecting the distribution of the various agreement choices. More specifically, it appears that there is a general drift leading from single conjunct agreement, which was the preferred option in earlier stages, to resolution strategies giving rise to plural agreement on the verb (with 3pl overtaking at some point 2pl). The exception is 2sg, which continues to be robustly attested in inversion contexts when the first conjunct is a 2sg pronoun. In this section, I would like to add some brief remarks on the theoretical analysis of these facts.

Any theoretical analysis of the German facts must be flexible enough to capture the wide range of agreement patterns and the impact of linear order:

- resolution patterns: 2pl and 3pl (including the effect that the presence of a 3pl conjunct promotes 3pl marking on the verb)
- SCA: 2sg (preferably with the closest conjunct in MG, but also with a distant conjunct in earlier stages), 3sg (mostly confined to cases with a quantified 2nd conjunct in MG, but more wide-spread as CCA in earlier stages)

In addition, a descriptively adequate theory should rule out the possibility of 2nd conjunct agreement in cases where the verb precedes the complex subject: $*V_{2\text{sg}} [3\text{sg/pl} \text{ 'and'} 2\text{sg}]$ (but note that the features of the second conjunct should be accessible to resolution rules). Moreover, a diachronic account should capture the drift from SCA to resolution (including the loss/marginalization of distant conjunct agreement).

I take it that it is quite unlikely that the data reflects variation and change in the underlying syntactic mechanisms that establish verbal agreement, at least as long as we accept the premise that the basic operations of narrow syntax (such as Agree) are stable over time. Instead, I would like to propose that the observed synchronic and diachronic variation is the result of competing (post-syntactic) repair strategies that are required in cases of conjoined subject agreement to patch up the output of the syntactic derivation before the agreement features (on T) can be realized by a matching inflection/vocabulary item in the procedure of Vocabulary Insertion (Halle and Marantz 1993). Thus, the observed changes do not affect the basic syntactic mechanisms that establish agreement, but rather a set of interface operations that facilitate spell-out (cf. Himmelreich and Hartmann 2023 on a related Optimality-theoretic approach to agreement with disjoined subjects in MG; see also Marušič et al. 2015 on Slovenian).

¹²Note that I haven't found any cases where an inverted verb agrees with a second conjunct. Interestingly, this pattern seems to be unattested cross-linguistically, see Nevins and Weisser (2019: 223f)

The basic idea I would like to pursue is that in conjoined subject agreement, the verb picks up too many features in the syntactic derivation, which calls for post-syntactic repairs to facilitate spell-out of T's agreement features (cf. Fuß 2018; for related ideas see Coon and Keine 2021, and Himmelreich and Hartmann 2023). In what follows, I briefly outline some key properties of a relevant account (the details of which I hope to flesh out in future work). I adopt an asymmetric approach to coordination, where the conjoined subjects are merged as specifier and sister of the conjunction (cf. e.g. Johannessen 1998), assuming that the head of ConjP collects the features of both conjuncts (e.g. via upward and downward Agree operations). The Merge sequence is reflected in the feature structure, that is, Conj⁰ carries an ordered pair of φ-sets <[φ1], [φ2]> that corresponds to the values of both conjuncts, and is semantically interpreted as plural (i.e., a set of individuals). When T containing an unvalued φ-probe ([uPerson, uNumber]) enters the derivation, it finds ConjP (or rather, the ordered φ-set on its head) as the closest matching goal. As a result, the person and number features of T are valued by copying the ordered pair onto T. However, since an ordered pair cannot be matched with a vocabulary item, the feature set must be patched up post-syntactically before Vocabulary Insertion can take place, either via deletion of a feature set (→ SCA), or by resolution rules that compose a single feature set from the conflicting values (which might also involve feature deletion).

Let me start with the mechanisms giving rise to SCA, because this seems to be the historically primary pattern. In cases of SCA, only a single φ-set from the ordered pair on T is selected by the post-syntactic computation. The residue undergoes deletion (which can be modeled in terms of Impoverishment rules, Halle 1997). I assume that the selection process is sensitive to the linear position and structural properties of the conjoined subject.¹³ There are two options: Either the hierarchically higher conjunct may activate a corresponding φ-set on T, or the linearly closest conjunct.¹⁴ The first option leads to FCA, including instances where the verb agrees with a distant conjunct as in (2). The second option may lead to FCA or last conjunct agreement (LCA), depending on whether the verb precedes or follows the conjoined subject. In the history of German, we can observe that the disjunctive relation between activation-by-closest and activation-by-highest has been replaced by a more restrictive system in which both conditions apply, giving rise to a situation where FCA is by and large restricted to inversion contexts (there are some residues of the

¹³Note that this account is related to approaches where Agree is split up into a syntactic and a post-syntactic part, where feature valuation/activation is accomplished post-syntactically, cf. Arregi and Nevins (2012), Marušić et al. (2015).

¹⁴The two options may be linked to the timing relative to linearization: Activation prior to linearization targets the highest conjunct while activation after linearization targets the closest conjunct, cf. Marušić et al. (2015).

former system, though; see Section 2.2). Note that the unattested pattern *V_{2sg} [3sg/pl ‘and’ 2sg] is generally ruled out, since the second conjunct is neither the highest nor the closest conjunct in this configuration.

Resolution is the result of an alternative set of post-syntactic repairs, in which single values for [person] and [number] are composed of the ordered pair of ϕ -sets in T. In line with previous literature on the topic (e.g., Dalrymple and Kaplan 1997), I assume unification of the two ϕ -sets ($<[A],[B]>\rightarrow[A]\cup[B]$), followed by (language-specific) rules that resolve feature conflicts in the resulting unified set. Number resolution can be attributed to a rule like $[\alpha PL], [\alpha/-\alpha PL] \rightarrow [+PL]$, which ensures that the resulting value for [number] is always [+pl], regardless of the number values of the two conjuncts ([+pl] or [-pl]) (making use of so-called alpha-notation, where different manifestations of a binary feature are replaced with a variable, Chomsky and Halle 1968).

Note that at least in German, there is a basic asymmetry between number resolution (which always leads to the same outcome, namely [+plural]) and person resolution, which can lead to 2pl or 3pl marking on the verb (note that 3pl is actually a misnomer; the verbal inflection *-en* is rather a default plural marker that appears with both 1pl and 3pl subjects, $[+pl]\Leftrightarrow/-\exists n$). In the present approach, this kind of variation can be taken to reflect different and (diachronically and synchronically) competing repairs for [person] conflicts. More precisely, 2pl results from choosing the more marked person value in line with the (universal) hierarchy $1 > 2 > 3$; in contrast, 3pl can be attributed to an alternative procedure that resolves the conflict by deleting the [person] features from the unified feature set (again via Impoverishment), leading to insertion of the general plural marker *-en*, which is underspecified for person distinctions (“emergence of the unmarked”, McCarthy and Prince 1994, Halle 1997).

Finally, I would like to address the question how we can account for the diachronic developments, especially the drift from SCA to number resolution. What I would like to propose is that the preference for plural agreement (2pl or 3pl) can be attributed to a general tendency to align grammatical agreement and semantic agreement (where the verb agrees with a set of individuals composed of the two conjuncts), possibly promoted by linguistic prescriptivism (cf. e.g. Adelung 1782). Note that this approach can also capture the developing bias toward 3pl: Due to wide-spread syncretism of 3sg and 2pl in the present indicative, the marker *-en* can be taken to signal [+plural] more unambiguously than the competing 2pl form *-(e)t* (see fn. 3 above).¹⁵ In addition,

¹⁵The observation that the presence of a 3pl conjunct promotes 3pl marking on the verb can perhaps be accounted for along similar lines in that overt plural marking on the conjoined subject increases the tendency to unambiguously mark plural on the verb.

it makes available an explanation for singular agreement in cases where the second conjunct is a non-referential element (see Section 2.2): Since the conjoined subject cannot be interpreted as a set of individuals, only singular forms are in line with semantic agreement in this context.

5 Concluding remarks

This paper has attempted to shed some light on the diachrony and theoretical analysis of conjunct subject agreement in German. Based on a brief review of the present-day language, which exhibits variation between three major patterns (2pl, 3pl, 2sg/FCA under inversion, plus some additional minor options), I have traced the historical developments since MHG. It has been shown that earlier stages are characterized by a preference for agreement with only a single conjunct (including patterns where the verb agrees with a distant conjunct), which gradually gives way to a system where conjoined subjects tend to trigger plural agreement on the verb. I have then outlined a realizational account of the synchronic and diachronic facts that attributes agreement variation to a set of competing post-syntactic repair strategies. These procedures are required to patch up the outcome of a syntactic derivation in which T has picked up too many features. I have argued that the general shift towards plural agreement (and 3pl, in particular) has been promoted by a general tendency to align grammatical and semantic agreement in connection with conjoined subjects (which are usually interpreted as sets of individuals).

It is evident that the brief discussion in Section 4 leaves many questions unanswered, which hopefully will stimulate future work on CSA and its historical development. In particular, more should be said about the factors that govern the choice between different repair strategies, which might include dialectal and individual preferences as well as properties of the conjoined elements (e.g. animacy, definiteness, and referentiality), word order, phonological phrasing, and last but least prescriptive pressures, possibly inviting an analysis in terms of ranked constraints as proposed by Himmelreich and Hartmann (2023) for agreement with disjoined subjects.

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Agreement patterns of coordination

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1 Introduction

Agreement with coordinated subjects has been a topic of interest for many decades in linguistics.¹ Coordinations are complex linguistic constructions, where two parts are connected by a coordinator like the conjunctive *and*, the disjunctive *or*, or the adversative *but*.² In cases of coordinated subjects, the finite verb agrees with a coordination in person, gender, and number in languages that have verbal agreement. With this comes the question of what the ϕ -features of a coordination are and how they are determined. It seems that the features depend both on the features of the *coordinands* (the parts of the coordination as a hypernym for conjuncts and disjuncts, see Haspelmath 2004 for the terminology) and the type of coordinator, so whether the coordination is a conjunction or a disjunction. Example (1) illustrates this for English.

- (1) a. [The boy *and* the man] **are/*is** running to the village.
 b. [The boy *or* the man] **are/is** running to the village.

While the number of two conjoined singulars must result in plural agreement in English, singular agreement is optionally possible under disjunction (Peterson 1986, Haskell and MacDonald 2005, Foppolo and Staub 2020), is sometimes claimed to be the only option (Fowler 1983: 189, Morgan 1985: 234) for some cases, and sometimes, subject disjunctions with mismatching numbers are even claimed to be generally ineffable (Sobin 1997: 320).

¹Before starting, we should admit to deliberately dropping one of our co-authors for the purpose of this paper: Katharina. The paper finally should finish up what we couldn't finish up during the DFG-funded project *A General Theory of Multivaluation* led by Katharina. We just hope she's happy seeing a written version of this and doesn't hold it against us that we dropped her to avoid that she authors a paper in her own festschrift.

²For the purpose of this paper, we ignore comitative constructions of the type *X with Y*, even though we cannot fully exclude that some of the languages we investigate use them to express coordinative meaning in English.

According to the literature, agreement with coordinations that have coordinands mismatching in number, gender, or person features is subject to variation across languages, although no explanations have been offered as to why languages vary in the way that they do.

This paper presents some broader empirical findings about the variation of agreement resolution and establishes some generalizations about the factors that influence the choice of the resolution strategy.

In Section 2, we are introducing various agreement strategies and possible factors that could influence agreement strategies. Section 3 presents our methodology: Instead of looking closer at a small number of languages, we conducted online questionnaires and classic data elicitations to collect comparable data on agreement resolution in 27 languages. Based on this, Section 4 summarizes our findings regarding the factors influencing agreement. Concretely, we aim to investigate what decides or not decides between *Resolved Agreement* on the one hand, where the ϕ -features seem to be computed out of the features of all coordinands, and *Closest Coordinand Agreement* on the other, where the verb agrees with the coordinand that is closest to it, ignoring the other coordinands. We will show that both the type of coordination and the word order influence the agreement strategy. Concretely, we show that Closest Coordinand Agreement is more likely to occur when the coordinated subject follows the verb and independently more likely to occur under disjunction, while resolved agreement is more probable when the coordinated subject occurs first or in conjunctions.

2 Agreement strategies of coordination

This section introduces the construction investigated in this paper and summarizes the agreement strategies and potentially determining factors.

2.1 The construction

For the purposes of this research, we are looking into structures with coordinated subjects. Specifically, we investigate the construction in (2), where a coordinated subject, consisting of two coordinands, agrees with the simple intransitive verb *run*.

- (2) a. [The boy $_{\phi_1}$ and the man $_{\phi_2}$] run $_{\phi_?}$.
 b. [The boy $_{\phi_1}$ or the man $_{\phi_2}$] run $_{\phi_?}$.

This construction can be altered according to the factors outlined in Section 2.2.

2.2 Factors for the agreement strategy

We hypothesize that the choice of the agreement strategy can depend on four factors. The first potential factor concerns language variation. Given the Borer-/Chomsky Conjecture in (3), we assume that syntactic mechanisms, such as agreement, should apply in all languages similarly, as language variation is restricted to the featural make-up of functional heads, but does not affect the syntactic mechanisms themselves.

- (3) **Borer/Chomsky Conjecture** (as formulated in Obata et al. 2015: 3)
 Syntactic parameters are restricted to variation in the morphological features of functional syntactic heads. (Borer 1984, Chomsky 1995)

However, the realization of agreement is a matter of morphology. Previous studies on agreement with coordinations have usually only looked at one or very few languages at once (e.g. Aoun et al. 1994, Munn 1999, Bošković 2009, Bhatt and Walkow 2013, Marušič et al. 2015, Willer-Gold et al. 2016, Palmović and Willer-Gold 2016, Fuß 2018, Murphy and Puškar 2018, Nevins and Weisser 2018, Arsenijević et al. 2019, Marušič and Shen 2021, Himmelreich and Hartmann 2023, Shen 2023). Comparing these previous works, it seems obvious that languages do show variation (both across and within languages). Thus, we deduct that language is a potential factor for determining the strategy for agreement with coordinations. What needs to be seen is the extent to which languages differ and whether related languages show similar behaviors. In order to investigate the differences, the agreement must be studied in as many different languages as possible. The difficulty here is that grammars barely have any information on which agreement forms speakers choose with coordinated subjects, leading to the need to specifically elicit such data.

The next factor concerns the agreement features involved, concretely number, person, and gender (or alternatively noun class). Besides looking at the features separately, it is also worth looking at feature interactions: Marušič et al. (2015) have shown that, in some languages, there is a connection between gender and number in that gender actually depends on number. They showed for Slovenian that Closest Conjunct Agreement, First Conjunct Agreement, Resolved Agreement, and Default Agreement are all possible depending on the right configuration of ϕ -features.

Furthermore, word order (SV vs. VS) might be a factor influencing the choice of the agreement strategy. Aoun et al. (1994) were among the first to show that word order differences can impact the agreement strategy: Various Arabic dialects exhibit Resolved Agreement under SV order and CCA under VS order.

Lastly, the type of coordination (concretely conjunction vs. disjunction)

might also be a factor that has an impact on the agreement strategy. Marušič and Shen (2021) showed that, in Slovenian, both coordination types behave the same when it comes to the range of agreement strategies (CCA, FCA and Resolved Agreement). However, they found that disjunctions show a greater tendency for CCA than conjunctions. Note that there is very little work on the syntactic and semantic differences between disjunctions and conjunctions. For some work see Payne (1985), Haspelmath (2007), Schmitt (2013).

To summarize, for each language, we can recognize three factors: agreement feature(s), coordination type, and word order with the values indicated in (4).

- (4) a. COORDINATION TYPE: conjunction, disjunction
 b. AGREEMENT FEATURE: number, person, gender
 c. WORD ORDER: SV, VS

The goal is to find out which agreement strategies are used by different languages in the various combinations of the factors and whether there are generalizations regarding which of these factors determine the choice of the agreement strategies, which we describe in the next subsection.

2.3 Agreement strategies

When it comes to the strategies for agreement with coordinations, there are seven agreement strategies which are logically possible. In this section, we show the agreement target (the finite verb) in bold face and the agreement controller with an underline. The coordination is bracketed. Unless cited otherwise, examples in this section were elicited as part of the broader data collection that we discuss in Section 3.³

The first set of strategies can be summarized as single coordinand agreement strategies, where the verb agrees with only one of the coordinands in the coordination. The first strategy in this set is *First Coordinand Agreement* (FCA). Here, the finite verb agrees with the linearly first coordinand independent of word order. An example of this strategy is given in (5) on the basis of Turkish.⁴

- (5) a. ?[O ve ben] **koşuyor**.
 he and I run.3SG
 ‘He and I run.’

b. Köye doğru **koşuyor** [o ve ben]
 to village run.3SG he and I
 ‘He and I run to the village.’

³We would like to thank all people participating in our surveys, whether the languages were explicitly mentioned here or not. Interpretation and analysis of the data are due to us and not the speakers. Any errors in the examples below are our own.

⁴We would like to thank Derya Nuhbalaoğlu-Ayan for the Turkish data.

In (5), the verb *koşmak* ('run') only agrees with the first coordinand. This is quite evident in the case of (5-a), where the verb agrees in 3SG with the first coordinand and ignores the 1SG second coordinand.

Similarly, one could imagine the opposite of FCA: *Last Coordinand Agreement* (LCA). Here, the verb would always agree with the second coordinand. We can illustrate this hypothetical pattern in (6) with German sentences, where the verb *werden* ('become') agrees in 2SG with the second coordinand *du* ('you').⁵ Note, however, that (6) is not the actual German pattern.⁵

- (6) a. [Ich oder du] **wirst** krank.
 I or you become.2SG sick
 'I or you get sick.'
 b. Krank **wirst** [ich oder du].
 sick become.2SG I or you
 'I or you get sick.'

The third possibility to agree with only one coordinand is *Closest Coordinand Agreement* (CCA). Here, the choice between the coordinands depends on linear closeness, which means that the verb agrees with the first coordinand under VS word order and with the last coordinand under SV word order. We illustrate this strategy with data from European Spanish in (7).⁶

- (7) a. ?[Yo o él] **corre**. b. ?**Corro** [yo o él].
 I or he run.3SG run.1SG I or he
 'I or he runs.' 'I or he runs.' (European Spanish)

In (7-a), the verb *correr* ('run') agrees with the last coordinand *él* ('he'), because it is the linearly closest target under SV order. Under the VS order in (7-b), the verb agrees with the closer *yo* ('I').

Before coming to the resolved agreement strategies, we should note that we explicitly distinguish CCA from FCA and from LCA. The difference, as we define it, is that in the case of FCA or LCA, the coordinand to agree with is fixed, independent of word order. Specifically, the case of FCA has been noted in Marušić et al. (2015) and Marušić and Shen (2021) to be a different strategy which they gave the term *Highest Conjunct Agreement*, taking into account the widely held assumption of an asymmetric coordination structure as proposed

⁵Fuß (2018: 210) notes in fact that LCA seems to be excluded in German. However, he provides one example, (i), that might involve LCA (*ibid*, fn. 25).

(i) [Ihr, oder du,] **schreibst** hier ...
 you.PL or you,SG write.2SG here ...

⁶We would like to thank Jennifer Tan for providing the Spanish data for us.

in Munn (1993), where the first conjunct is the structurally higher conjunct.⁷

Turning to the set of resolved agreement strategies, we have four different types that we can identify. The first one is what is standardly known as *Resolved Agreement*. In this strategy, the verb seems to agree with the entire coordination. The ϕ -features of this coordination can be computed by various rules (see Corbett 1983: 177ff.). With number, the value reflects the sum of the numbers of the individual parts (Harbour 2020). The general pattern for this is given in (8-a), for the most frequent number values singular, dual, and plural. For the other ϕ -features, gender and person, hierarchies are used to determine the resolved value of the coordination. The most common ones are given in (8-b) for person and (8-c) for gender. The rule in these cases is that the resolved value represents the value of the coordinand that is highest on the hierarchy.

- | | | |
|-----|----------------------------|------------|
| (8) | a. NUMBER: | b. PERSON: |
| | SG + SG = DUAL/PL | 1 > 2 > 3 |
| | SG + NON-SG = PL | c. GENDER: |
| | NON-SG + NON-SG = PL | MASC > FEM |
| | <i>non-sg</i> ∈ {dual, pl} | |

To illustrate this, (9) provides examples from Modern Standard Arabic with a conjunction. In (9-a) we have a conjunction of two 3SG. In (9-b-c), the two conjuncts are 1SG and 2SG respectively.⁸

- | | | | | |
|-----|--|---|--|--------------------------|
| (9) | a. [<u>al-walad-u</u> <u>wa-r-radgul-u</u>] jarkudaani .
the-boy-NOM and-the-man-NOM run.3DU
'The boy and the man run.' | b. [<u>?anta</u> <u>wa-?anaa</u>] narkud^fu ⁹ .
you and-I run.1DU~PL
'You and I run.' | c. [<u>?anaa</u> <u>wa-?anta</u>] narkud^fu .
I and-you run.1DU~PL
'I and you run.' | (Modern Standard Arabic) |
|-----|--|---|--|--------------------------|

What can be observed in (9-b-c) is that the person agreement on the verb is determined by the hierarchy in (8-b), where 1ST person wins over 2ND person. The number value follows the rules in (8-a), with two singulars adding up to dual in Modern Standard Arabic.

⁷Under this assumption, Highest Conjunct Agreement is equal to First Conjunct Agreement.

⁸We would like to thank Rukayah Alhedayani for providing these data for us.

⁹Note that there is no separate dual form for first person in Modern Standard Arabic.

Another possibility for resolving mismatching values is to render agreement impossible, ending up with *Ineffability*. The only way to express this might be to use a different construction such as clausal coordination to have one verb in each coordinand. This is exemplified in (10) for Mussau-Emira, an Austronesian language spoken in Papua New Guinea.¹⁰ Instead of saying *we and they run*, speakers use the clausal conjunction *we run and they run*.

A variant of the Ineffability strategy is one where mismatches render agreement impossible, unless the verb can bear an agreement marker that is syncretic for the ϕ -features of both coordinands. For our purposes, we call this strategy *Ineffability Without Syncretisms*. These syncretism effects are also commonly found outside of coordination in other agreement and case constructions with multiple targets, e.g. free relatives (cf. Riemsdijk 2006) and specificalational copular clauses (cf. Sigurðsson and Holmberg 2008, Hartmann and Heycock 2017).

Evidence for this type of syncretism effect in coordination comes from German disjunctive subjects (see Himmelreich and Hartmann 2023) in (11). While both non-syncretic forms in (11-a) are not completely ruled out by speakers according to a judgment study, their uses are quite marked. A syncretic form like in (11-b) is generally more acceptable.

- (11) a. [Ich oder mein Kollege] ??**habe**/?**hat** gestern einen
I or my colleague have.1SG/3SG yesterday a
Fehler gemacht.
mistake made
'I or my colleague made a mistake yesterday.'

b. [Ich oder mein Anwalt] **soll** morgen dem
I or my lawyer should.1SG~3SG tomorrow the
Richter Bescheid sagen.
judge notice say
'I or my lawyer should notify the judge tomorrow.' (German)

Finally, the last one of the resolved strategy type is *Default Agreement*, which simply uses a default form available in the language when the agreement target is coordinated or when there is a mismatch.

¹⁰We would like to thank John Brownie for providing data and information about Mussau-Emira in the first questionnaire.

For this strategy, we present the Somali example in (12).¹¹

- (12) a. [Wiilka ama ninka] **ayaa orda.**
 boy.SG or man.SG DEF run.DEF
 ‘The boy or the man run.’
- b. [Wiilasha ama ninka] **ayaa orda.**
 boy.PL or man.SG DEF run.DEF
 ‘The boys or the man run.’
- c. [Wiilka ama nimanka] **ayaa orda.**
 boy.SG or man.PL DEF run.DEF
 ‘The boy or the men run.’

(Somali)

The agreement form used is neither singular nor plural but is a separate form and might be described as a default form. Of course, in many languages, the default agreement form is 3SG (see for example Béjar 2003, Preminger 2014: 129). To identify that we have default agreement, one would expect such a form to be equally available for example in a 1PL+2SG coordination.

To summarize, there are seven strategies that we expect to find for agreement with coordinations. They can be grouped into two types: single coordinand agreement strategies and resolved strategies. Table 1 summarizes these strategies.

STRATEGY	PATTERN	
First Coordinand Agreement (FCA)	[<u>C₁</u> + <u>C₂</u>] Verb	Verb [<u>C₁</u> + <u>C₂</u>]
Last Coordinand Agreement (LCA)	[<u>C₁</u> + <u>C₂</u>] Verb	Verb [<u>C₁</u> + <u>C₂</u>]
Closest Coordinand Agreement (CCA)	[<u>C₁</u> + <u>C₂</u>] Verb	Verb [<u>C₁</u> + <u>C₂</u>]
Resolved Agreement (RES)	[<u>C₁</u> + <u>C₂</u>] Verb	Verb [<u>C₁</u> + <u>C₂</u>]
Ineffability (INEFF)	[<u>C₁</u> + <u>C₂</u>] Verb	Verb [<u>C₁</u> + <u>C₂</u>]
Ineffability w/o Syncretisms (INEFFSYN)	[<u>C₁</u> + <u>C₂</u>] Verb	Verb [<u>C₁</u> + <u>C₂</u>]
Default Agreement (DEF)	[<u>C₁</u> + <u>C₂</u>] Verb	Verb [<u>C₁</u> + <u>C₂</u>]

Table 1: Overview of agreement strategies

Of course, it is possible that languages vary between the strategies they choose and it is possible that languages combine different strategies depending on the factors discussed in Section 2.2, specifically the coordinator, the ϕ -features

¹¹We would like to thank Abdalla Jama Aden, Abduqadir Ahmed, Yasin Jama and one anonymous Somali speaker for the Somali data as well as Morgan Nilsson for providing us with the contacts to the speakers.

and the order of verb and coordination. In the rest of this paper, we present a study that tries to investigate these questions further. Section 3 summarizes the data collection we did to get an empirical basis and Section 4 presents the results of a statistical analysis of these data to find correlations between the different structural factors and the agreement strategy.

3 The survey

In order to test which of the four potential factors (language, agreement feature, coordination type, word order) actually play a role for the agreement strategy, we tried to elicit the relevant data in as many languages as possible. Since the relevant constructions are rarely discussed in language grammars and individual elicitations testing all the different options can take a long time, we opted for eliciting data and information via online surveys. The results of these surveys were fed into a database. In this section, we present the methods of our data collection (Section 3.1) and briefly summarize the structure and functions of the database we developed (Section 3.2).

3.1 Methods of data collection

3.1.1 Online questionnaires

In a first attempt to elicit data, we developed a questionnaire on Google Forms. The link was posted on LinguistList and shared directly with linguists. The main goal of this questionnaire was to get an overview of some data and to get in contact with speakers with linguistic backgrounds from various languages, or linguists who have worked on different languages and know how agreement with coordination works.

This first questionnaire contained two parts: In the first part, participants were asked to translate English sentences into their respective languages. The sentences were variations of the constructions in (2), described in Section 2.1, which consisted of a coordinated subject and the verb *run*.

Afterwards, the participants were asked to answer more general questions about the agreement patterns with coordinated subjects.

With the first questionnaire, however, we ran into two major problems. First, the translation part did not contain all the combinations of the factors coordinator, agreement feature, and word order. While this was intentional to keep the questionnaire shorter and less time consuming for the participants, it resulted in an incomplete set of data. The second problem was caused by the level of difficulty of the question part, which was too difficult for most participants to answer and again resulted in incomplete answers.

Despite these shortcomings, however, we were able to gather a fairly large amount of data and contacts of various speakers with some linguistic background.

In order to overcome the problems of the first survey, we developed a second online questionnaire that solely focused on translating and rating natural language sentences.¹²

The questionnaire works as follows: If there is no information yet on a language, speakers are asked to translate 18 simple sentences from English into their language. These sentences consist of a subject, the verb *run*, and the prepositional phrase *into the village*. The goal of this part is to elicit the complete agreement paradigm as well as all word forms necessary to construct co-ordinated subjects. In this part, we also try to find out whether languages allow different word orders, particularly VS orders. Based on the results, we semi-automatically generate sentences in the respective target language for part two of the questionnaire.

In the second part, speakers are asked to rate sentences from their language on a scale from 1-5 (5 being the best possible rating): The sentences vary regarding the coordinated noun phrases, the coordination type (*and* or *or*), verbal agreement, and word order (VS or SV).

The sentences are presented in blocks, where each block has the same sentence, but with different agreement options. The blocks are presented in random order, which reduces the problem of the speakers seeing a sequence of minimal pairs. Finally, the rating results are automatically saved once a block is finished. That means that speakers do not have to finish the entire questionnaire completely. The rating results are then analyzed manually and the ratings are mapped to categories of grammaticality.

Obviously, this method of data collection has the problem that speakers are not supervised and might misunderstand the task, which, in our opinion, does not offset the advantage of being able to gather very large amounts of data.

3.1.2 One-one-one elicitation

In order to supplement the questionnaires, we also scheduled one-on-one elicitation sessions with a few speakers. These elicitation sessions were held via video conference or in person. The speakers were asked to translate basic English sentences consisting of the coordinated subject and the verb *run*. Additionally, they were supposed to judge the sentences as to whether they found them grammatical, ungrammatical, or marked. All in all, the tasks were identical to the tasks in the second version of the online questionnaire.

¹²The questionnaire is still online and can be filled out under <http://www.multivaluation.de/questionnaire.php>.

Due to the large amount of data, the sessions were very time consuming, taking altogether around 4 hours, which made it harder to get judgments from multiple speakers of one language. Also, speakers had to answer immediately and needed a lot of concentration since the sentences were very similar to each other. Finally, the speakers in these sessions had a more complex task, doing both translations as well as ratings of different agreement options.

Altogether, the combination of online questionnaires and one-on-one elicitations allowed us to quickly gather a larger amount of data on agreement with coordinated subjects. In a next step, we manually glossed and analyzed the data regarding the agreement strategies found with different feature combinations and stored the information in a database to find generalizations.

3.2 The database

3.2.1 Structure of the database

The results of the data collection were fed into a read-only database, programmed with PHP (<http://www.multivaluation.de/database.php>). The database consists of two parts: The first part is a simple csv-file (= *comma separated value* file) that stores information bundles consisting of the language with the language family, the agreement feature (person, number, gender), the word order (SV or VS), the coordination type (disjunction or conjunction), and the agreement strategy, which was determined manually. The users can then filter this information for certain values and receive a count and percentage of the co-occurring factors.

The second part of the database consists of a set of language files which contain more details about the respective language and the agreement strategies, including language examples.

4 Results

Based on the 154 entries in the csv-file of the database, this section presents some generalizations we can draw from this. Please note that, in this section, the percentages show the share that a language, a language family, a feature, a coordination type, a word order, or an agreement strategy has in the total number of results.

4.1 Overview

Before discussing the different factors individually, we would like to present an overview of the data first. Currently, the database contains information on 27 languages from the seven language families given in (13). Obviously, the

database is not typologically balanced, as the majority of entries are from Indo-European and Afro-Asiatic (specifically Semitic) languages. The main reason for this is simply the lack of accessible and reliable data from a large amount of languages.

(13) **7 language families:**

Indo-European	94 (61.04%)	Afro-Asiatic	39 (25.32%)
Turkic	8 (5.19%)	Isolate	4 (2.60%)
Uralic	4 (2.60%)	Panoan	3 (1.95%)
Austronesian	2 (1.30%)		

As for the agreement features, we see that gender agreement shows up less than number and person agreement, see (14). This is expected, since verbal gender agreement is less common in the world's languages.

(14) **3 agreement features:**

Number	72 (46.75%)
Person	69 (44.81%)
Gender	13 (8.44%)

Coming to word order, the majority of the data show SV order. This is due to the first survey that did not include any VS orders. Hopefully, we can overcome this problem by collecting more data. Still, the data suffice to draw conclusions about the factor word order.

(15) **2 word orders:**

SV	107 (69.48%)
VS	47 (30.52%)

Next, the information regarding coordination type is very balanced as nearly all languages have equal constructions for conjunctions and disjunctions.

(16) **2 coordination types:**

and	79 (51.30%)
or	75 (48.70%)

Finally, we can look at the overall distribution of the agreement strategies. There are two main observations. First, the most common strategy is Resolved Agreement: 90.92% of all patterns involve Resolved Agreement. Second, it

is very common that a language uses more than one strategy at once: 31.82% show mixed patterns. Table 2 shows the distribution in detail.¹³

RES	91 (59.09%)	(RES) (CCA)	11 (7.14%)
CCA	10 (6.49%)	RES CCA	9 (5.84%)
RES (CCA)	7 (4.55%)	(RES) (INEFF)	4 (2.60%)
RES > (CCA)	3 (1.95%)	INEFF	2 (1.30%)
RES > (CCA) (FCA)	2 (1.30%)	RES FCA CCA DEF	2 (1.30%)
DEF	2 (1.30%)	(RES) (INEFF) (FCA)	2 (1.30%)
RES > (FCA)	1 (0.65%)	RES CCA (LCA)	1 (0.65%)
(RES) (INEFF) (CCA)	1 (0.65%)	CCA > RES	1 (0.65%)
(RES) CCA	1 (0.65%)	CCA > (RES)	1 (0.65%)
(RES) CCA (LCA)	1 (0.65%)	(RES) (CCA) DEF	1 (0.65%)
(RES) (CCA) (FCA)	1 (0.65%)		

Table 2: Distribution of agreement strategies

In the rest of this section, we take a closer look at the two most common agreement strategies, Resolved Agreement and Closest Coordinand Agreement. We analyze the collected data to see if any of the structural factors – agreement feature(s), coordination type, word order – plays a role for determining the agreement strategy. For this, we will ignore mixed patterns and solely focus on patterns where the two strategies each occur in isolation. While this is not a complete analysis of the data, it hopefully provides an insight into the question of what matters for agreement with coordinations.

4.2 Effects of agreement features

For testing the effects of the different features involved in agreement, we filtered the data for number, person, and gender, respectively. The results are shown in the table in (17). The first number represents the total number of results found, the second number shows the proportion of the total number of results found for a feature.

¹³Table 2 is to be read as follows ($S \in \{\text{RES}, \text{CCA}, \text{FCA}, \text{LCA}, \text{DEF}, \text{INEFF}\}$): S means that the strategy occurs in all combinations; (S) means that the strategy occurs only in some combinations; $S_1 > S_2$ means that strategy S_1 is preferred over strategy S_2 ; $S_1 | S_2$ means that strategy S_1 and S_2 are equally possible.

(17)

	number	gender	person
RES	38 (52.78%)	10 (76.92%)	43 (62.32%)
CCA	4 (5.56%)	2 (15.38%)	4 (5.80%)

To analyse the data, a Fisher's exact test¹⁴ was used, as the overall number of the results is too low for a Chi-Square test. The test revealed that the agreement feature is not a significant factor for the choice between Resolved and Closest Coordinand Agreement ($p = 0.721$).

4.3 Effects of coordination type

We analyzed the influence of the coordination type in the same way as we did with agreement features. The results are given in (18).

(18)

	conjunction	disjunction
RES	58 (73.42%)	33 (44.00%)
CCA	3 (3.80%)	7 (9.33%)

With a Fisher's exact test, we found the difference between conjunction and disjunction in our data to be statistically significant ($p = 0.0304$). This suggests that disjunctions are more prone to Closest Coordinand Agreement than conjunctions, which are more likely to show Resolved Agreement. This is in line with the findings of Marušič and Shen (2021) that showed a greater tendency for CCA in Slovenian disjunctions compared to conjunctions.

4.4 Effects of word order

Finally, the effects of word order need to be investigated. Using the same method as above, our database gave us the following results.

(19)

	SV	VS
RES	77 (71.96%)	14 (29.79%)
CCA	2 (1.87%)	8 (17.02%)

¹⁴All Fisher's exact tests were performed with the following online tool: <https://www.quantatitativeskills.com/sisa/statistics/fiveby2.htm>

The influence of word order turned out to be statistically significant in a Fisher's exact test ($p < 0.001$). This suggests that there is a greater tendency for Resolved Agreement under SV order than under VS order and vice versa, CCA is more likely to show up under VS order than under SV order.

5 Summary and outlook

In this paper, we have presented some results from our research about agreement with coordinated subjects in the world's languages. The main goal of our investigations was to see which of the factors language, agreement feature, word order, and coordination type determine the agreement strategy. For the purposes of this paper, we concentrated on the structural factors that determine the choice between Resolved Agreement (agreement with the entire coordination where the features of the coordinands determine the features of the coordination) and Closest Coordinand Agreement (agreement with the linearly closest coordinand). We provided some data that suggest that the coordination type as well as the word order independently effect the choice. What remains to be seen is whether these observations can be maintained even for a larger and more balanced set of data and how these observations tie in with syntactic theories of agreement and the structure of coordinations. Lastly, we would like to thank Katharina greatly for making the project a success and we hope that she enjoys reading this paper.

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Direct modifiers in non-free phrases in Japanese

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1 Introduction

This paper investigates modifiers as part of idiomatic and collocated DPs, here summarized as *non-free phrases*, and analyzes them as direct (= attributive) modifiers focusing on Modern Standard Japanese.¹ Non-free phrases or *phrasemes* (Mel'čuk 2012) are made up of at least two constituents, where one of which must be used in a constrained way. This paper argues that modifiers partaking in non-free DPs are *direct*, that is non-predicative, in general and also in Japanese. In doing so, the claim that Japanese does not possess modifiers of this type will be refuted.

This paper is organized as follows. After an introduction to the Japanese nominal domain, which will highlight the research questions, a general overview over the dichotomy direct/indirect modification and non-free phrases will follow in Section 3. Section 4 presents relevant construction in Japanese and derives the syntactic position of the relevant modifiers. Section 5 concludes.

2 Introduction to the Japanese nominal domain

Japanese is a strictly head-final SOV language with exclusively prenominal modifiers, which include numerals, verbs, nominals, two adjective groups, here referred to as *i-adjectives* and *na-adjectives*, and demonstratives, but not articles. Additionally, there is a variety of modifiers that co-occur in attributive position with the element *-no*. While this element arguably prototypically appears with nouns, yielding possessive (1-a) and argumental relationships (1-b) among others, it also occurs with more adjectival lexemes. A good example

¹This paper is a small part of my PhD project, which I would have never been able to carry out without your help, Katharina. You inspired and challenged me to critically examine every part of this project and my ideas as a scientist. I dedicate this paper to you and wish you joy, health and success in the years to come.

is *mumei-no* ‘unknown’, which (almost) exclusively co-occurs with *-no*, but shares many features with the Japanese adjectival groups, including gradability, at least with adverbs such as *kanzenni* ‘completely’ (2-b) and inside comparative clauses (2-c), the possibility to be nominalized via the suffix *-sa* ‘-ness’ (2-d), and the impossibility to appear with nominative and accusative case particles, (2-e) and (2-f).² For these reasons, such lexemes are sometimes referred to as *no-adjectives* (Mio 1942, 1958, Muraki 2012), but I will choose the label *no-modifiers* for modifiers which appear attributively with *-no* but are not unequivocal nouns.³

- (1) a. sensei-no hon
teacher-NO book
'book of the teacher'
- b. Itaria-no hakai
Italy-NO destruction
'Italian destruction'
- (2) a. mumei-no haiyū
unknown-NO actor
'unknown actor'
- b. kanzenni mumei-no haiyū
completely unknown-NO actor
'completely unknown actor'
- c. Tanaka-san-yori (motto) mumei-no haiyū-to at-ta.
Tanaka-Mr.-than more unknown-NO actor-COM meet-PST
'I met with a more unknown actor than Mr. Tanaka.'
- d. mumei-sa
unknown-ness
'unkownness; anonymity'
- e. *Mumei-ga ku-ru.
unknown-NOM come-PRS
Intend.: '(The/An) Unknown comes.'
- f. *Mumei-wo mi-ru.
unknown-ACC see-PRS
Intend.: 'I see (the/an) unknown.'

In Japanese, the syntactic role of a modifier inside the DP is not visible from the surface structure. Neither is there, in most cases, a morphological difference between attributively used lexemes and their predicative counterparts, more importantly there is *only one* surface construction available for lexemes partak-

²For different analyses of *mumei-no*, see Teramura 1982, Katō 2003, Morita 2013.

³Note that for reasons of space and relevance, I omit a discussion of the element *-no* in this paper. I therefore adopt a noncommittal gloss and display it as part of the modifier in syntactic trees.

ing in nominal modification and fairly complex modifiers can be exhibited in attributive position. Essentially, it seems as if the word order has been shifted around as illustrated below for a verbal modifier.

- (3) a. Kare-ga [hon-wo kat-ta].
 he-NOM book-ACC buy-PST
 ‘He bought a book.’
- b. [kare-ga kat-ta] hon
 he-NOM buy-PST book
 ‘the book (which) he bought’

Since the relationship between a head noun and its modifier is not morphosyntactically marked, and neither are relative clauses – for example via relative pronouns or complementizers (Kuno 1973, Comrie 1998) – the standard assumption has been for decades that this language simply lacks direct (attributive) modification and all modifiers form a relative clause structure (Kuno 1973, Hinds 1988, Whitman 1981, Kaplan and Whitman 1995, Sproat and Shih 1991, Baker 2003, Laenzlinger 2011). As will be shown in this paper, however, modifiers in non-free DPs are one type of direct modifier.

3 Direct and indirect modifiers, idiomatic modifiers, collocations

3.1 Direct and indirect modifiers

The difference between direct (attributive) and indirect (predicative) modification concerns the internal syntactic structure and hierarchical position. Concretely, indirect modifiers are structurally larger and embedded in a clause. Now, admittedly, most DPs in English that consist of a simple adjective and a noun are equally ambiguous in the sense that we do not know what the underlying structure is. For example in (4), nothing can be deduced about the nature of the adjective *big*.

- (4) the big table

However, crucially, different to Japanese, English has other mechanisms of modification available. The adjective *big* can be embedded in a *relative clause*, such clauses being prime examples of indirect modifiers. See (5).

- (5) the table which/that is big

As visible in (5), the relative clause contains a relative pronoun/a complementizer but also the copula *is*, therefore alluding to the predicative structure of the adjective. Another type of indirect modifier are *reduced relative clauses* (RRCs) (Cinque 2010: 54–55, Douglas 2016, Harwood 2018). They are reduced in the

sense that they, at least in English and most Indo-European languages, lack a relative pronoun or a complementizer and a copula or verb respectively. As noted by several authors (Kayne 1994, Sadler and Arnold 1994, Larson 2000, Larson and Marušić 2004), English postnominal adjectives are prototypical examples of this category, although most adjectives are only licit in this position when they occur with a complement, in which case they are banned from the prenominal position.⁴

- (6) a. the man proud *(of his children)
 b. *the proud of his children man (Williams 1982: 160)

We know that the postnominal position of adjectives in English equals indirect modification via checking for available readings of ambiguous adjectives. One concerns the famous dichotomy *non-intersective* vs. *intersective* reading for adjectives such as *beautiful* (Vendler 1957, Siegel 1976, Larson 1995, Cinque 2010). In prenominal position, the adjective is ambiguous between a non-intersective reading, in which the dancing of Olga is being characterized as beautiful, and an intersective reading, in which the beauty of Olga is characterized irrespective of her dancing skills. This is visible via the paraphrases given in (7).

- (7) Non-Intersective vs. Intersective (Larson 1995: 145)
- a. Olga is a beautiful dancer. (ambiguous)
 - b. 'Olga is a dancer that dances beautifully.' (non-intersective reading)
 - c. 'Olga is a dancer and Olga is beautiful.' (intersective reading)

However, when the adjective appears postnominally, it can only be interpreted intersectively.

- (8) Non-Intersective vs. Intersective (Cinque 2010: 9)
- a. Olga is a dancer more beautiful than her instructor. (only intersective)
 - b. #'Olga is a dancer that dances beautifully.' (non-intersective reading)
 - c. 'Olga is a dancer and Olga is beautiful.' (intersective reading)

That the intersective reading is the predicative reading can be verified by embedding the adjective in a full relative clause. Then, again, only the intersective reading is available and the non-intersective is inaccessible, thus equivalent to the postnominal use (Cinque 2010: 18–19). This is shown below.

⁴This observation goes back to Williams (1982) and has been dubbed the *Head-Final Filter*. See Alexeyenko and Zeijlstra (2021), Richards (2023) for recent contributions.

- (9) Non-Intersective vs. Intersective, full relative clause (Cinque 2010: 9)
- Olga is a dancer who is beautiful. (only intersective)
 - #‘Olga is a dancer who dances beautifully.’ (non-intersective reading)
 - ‘Olga is a dancer and Olga is beautiful.’ (intersective reading)

This means that while the intersective reading equals indirect, that is predicative, modification, the *non-intersective* reading equals *direct* modification.⁵

Abstracting away from ambiguous modifiers, there exist unambiguously direct modifiers, or direct-only modifiers. Keeping in mind that the relevant indirect readings for ambiguous modifiers only surface in predicative contexts, it becomes clear that direct-only modifiers completely resist predicative use and never have access to predicate position. In other words, while adjectives such as *beautiful* live a double life in English and can serve either as a direct or as an indirect modifier, this is not true for adjectives such as *former* or *alleged*. Not only can these adjectives never appear in predicative position, and by extension neither in relative clauses, they are also characterized by having a distinct non-intersective reading (Bolinger 1967, Kamp and Partee 1995, Alexiadou et al. 2007, Cinque 2010, Panayidou 2013).

- (10) a. a former president
 b. *This president is former.
 c. *a president who is former
- (11) a. an alleged murderer
 b. *This murderer is alleged.
 c. *a murderer who is alleged

It is such modifiers, then, that we need to determine in Japanese in order to prove the existence of direct modification.

3.2 Idiomatic modifiers and collocations

Another type of direct-only modifiers are those partaking in non-free phrases. First, look at the idiomatic expression in (12).

- (12) a white lie (Cinque 2010: 88)

Crucially, in English, adjectives as part of idiomatic expressions – henceforth referred to as *idiomatic adjectives* – are confined to the prenominal position

⁵There are several more such dichotomies, such as *modal* vs. *implicit relative clause* reading, *relative to a comparison class* and *absolute* reading among others. Furthermore, direct modifiers reside lower in the DP which predicts that they appear closer to the head noun and they are also ordered rigidly. See Cinque (2010: 23, 28–30) for an overview.

if they are to retain their idiomatic character. In (12), the combination of the adjective *white* and the noun *lie* leads to the idiomatic meaning approximate to ‘a lie that is not hurtful’. When modifiers of this kind appear postnominally they can only be interpreted literally, although the combination of *white* and *lie* in the literal sense does not seem to have any meaning in the first place. At any rate, keeping in mind that the postnominal position equals indirect modification, this is expected, as is the fact that the idiomatic reading is equally inaccessible in predicative position or inside a relative clause. This is shown below modeled after Cinque (2010: 88).

- (13) a. *a lie white in spirit
 b. ??This lie is white.
 c. ??a lie that is/was white

Now, there is a fine line between idiomatic expressions on the one hand, and so-called *collocations* on the other. Both need to consist of more than one element and the combination of the elements partaking in the relevant expressions lead to a certain meaning. Mel’čuk (2012) defines both as *non-free phrases* or *phrasemes*. A phrase is defined as non-free if “at least one of its lexical components L_i is selected by the speaker in a linguistically constrained way.” (Mel’čuk 2012: 33). In the combination *white lie*, the noun *lie* retains its meaning, but the adjective *white* is constrained in such a way that the intended meaning is only available if it modifies said noun. Another characteristic is the semantic *opacity* of this adjective which is no longer related to the concept of color.

Mel’čuk (2012) separates idioms, for which he gives the alternative names *set phrases* and *multi-word expressions*, in *full*, *semi* and *weak* idioms. Combinations such as *white lie* are arguably semi-idioms since one of the constituents contains the original meaning, in this case *lie*, whereas the other can be replaced, for example via *non-hurtful*. A weak idiom is an expression in which all lexical components keep some of their meaning, an example given by Mel’čuk (2012: 38) is *barbed wire*, whereas a full idiom is an expression in which neither constituent keeps its semantic meaning. A potential example of a strong idiom is the following idiomatic DP in German.⁶

- (14) Er ist ein alter Hase.
 he is a old hare
 ‘He has great experience/he is a veteran.’ (lit. ‘He is an old hare.’)

The combination of *alt* ‘old’ and the noun *Hase* ‘hare’ above yields the idiomatic meaning of someone who has great experience in something. In other

⁶For this and similar examples see Strakatova et al. (2020).

words, neither the meaning *hare*, nor *old* are preserved, crucially neither in the intersective meaning ‘aged’ nor in the subsective meaning ‘longtime’. Different to *white lie*, the literal meaning ‘old hare’ is a sensical combination and therefore theoretically available, but not probable when referring to human entities (abstracting away from contexts in fantasy novels, etc.). This means, however, that the adjective in this phrase is better suited to appear in predicative position with a copula or inside a relative clause. If it does so, however, the idiomatic meaning disappears and only the literal meaning is available.

- (15) Dieser Hase ist alt.
this hare is old
1. # ‘This is a veteran.’ (idiomatic)
2. ‘This is an old hare.’ (literal)
- (16) Er ist ein Hase, der alt ist.
he is a hare who/which old is
1. # ‘He is a veteran.’ (idiomatic)
2. ‘He is a hare which is old.’ (literal)

This shows that modifiers in weak (# This wire is barbed), semi and strong idioms are equally well analyzable as direct modifiers.

Coming next to collocations, the important difference is that those are *compositional* (Mel’čuk 2012, Strakatova et al. 2020). In other words, they are composed of a *base*, which must be semantically transparent, and a *collocate* and it is the collocate which is restricted (Strakatova et al. 2020: 4368). Examples given for German in Strakatova et al. (2020) with the adjective *tief* ‘deep’ are *tiefe Liebe* ‘deep love’ and *tiefes Misstrauen* ‘great mistrust’. In this case, the meanings of the nouns are always preserved, and the adjective *tief* ‘deep’ does not refer to the depth of something but rather designates the strength of a certain feeling. Nevertheless, it is less opaque and figurative than modifiers in idiomatic expressions discussed above.

A useful application in which collocations and frequencies of lexeme-combinations are given for German is the Wortprofil (Geyken et al. 2009) as part of the DWDS (Digitales Wörterbuch der Deutschen Sprache, DWDS 2019, <https://www.dwds.de>),⁷ For example, the adjective *stillschweigend* ‘tacit’ appears most frequently with the noun *Duldung* ‘toleration’ followed by *Übereinkunft* ‘agreement’ in the DWDS.

Interestingly modifiers that are part of collocations sometimes have access to predicative use. For the collocation *tiefes Misstrauen* ‘great mistrust’, we

⁷This tool is comparable to the *Word Sketch* tool in the application Sketch Engine <https://auth.sketchengine.eu> (Kilgarriff et al. 2014).

do find some, albeit not many, results on Google where *deep* ‘tief’ occurs predicatively.

- (17) Das Misstrauen ist tief in der rot-rot-grünen Koalition.
 the mistrust is deep in the red-red-green coalition
 ‘The mistrust is great (deep) in the red-red-green coalition.’⁸

On the other hand, this does not seem to be the case for collocations including the adjective *stillschweigend* ‘tacit’. According to my native speaker judgment and emphasized by the lack of examples on the DWDS and even on Google, predicative use is impossible as exemplified below.

- (18) a. Aber es gilt die stillschweigende Übereinkunft, dass man
 but it counts the tacit agreement that one
 einander in Ruhe lässt.
 each.other in peace leave
 ‘But the tacit agreement holds that people leave each other in
 peace.’⁹
- b. *Die Übereinkunft ist stillschweigend, dass man einander in
 the agreement is tacit that one each.other in
 Ruhe lässt.
 peace leave
 Intend.:‘The agreement is tacit that people leave each other in
 peace.’

3.3 Syntactic position

Finally, another important feature of modifier-noun idioms is that if the noun is modified by another modifier, this additional modifier cannot intervene between the idiomatic modifier and the head noun without causing the modifier to lose its idiomatic interpretation.

- (19) a. Er ist ein erfahrener alter Hase.
 he is a experienced old hare
 1. ‘He is an experienced veteran.’ (idiomatic)
 2. # ‘He is a hare that is experienced.’ (literal)
- b. Er ist ein alter erfahrener Hase.
 he is a old experienced hare

⁸<https://www.sueddeutsche.de/politik/berlin-gleich-mal-krach-1.3300497>,
 access: 2023/11/09.

⁹Andres Wysling, Reggio Emilia: Jedes Selfie bringt Stimmen. Neue Zürcher Zeitung, 11.01.2020;
<https://www.dwds.de/wp/?q=stillschweigend>, access: 2023/11/09.

1. # ‘He is an experienced veteran.’ (idiomatic)
2. ‘He is a hare that is experienced.’ (literal)

Another well-cited example is given by Svenonius (2008: 36–37).

- (20) wild rice

In the idiomatic interpretation, the combination ‘wild rice’ denotes a grain, not a specific kind of rice. However, a reading in which *wild* denotes being ‘uncultivated’ is also possible. As expected, this is the only reading if the adjective appears in predicative position.

- (21) This rice is wild.

Similarly, if another modifier co-occurs, the idiomatic reading is only retained in case of direct adjacency of idiomatic adjective and noun and lost in the other order.

- (22) wild Minnesotan rice (Svenonius 2008: 36–37)
 1. uncultivated rice from Minnesota
 2. # wild rice from Minnesota

For collocations, again, this must not necessarily be true. Take the case of *deep love*, a collocation in German and by intuition also English. Nevertheless, an example such as the following does not seem in any way unnatural, as backed up by several results on Google.

- (23) They are connected by a deep passionate love.

In any case, modifiers partaking in non-free phrases are a source for direct modifiers and will now be investigated with regard to Japanese.

4 Modifiers in idiomatic phrases and collocations in Japanese

4.1 Examples

Although the Japanese language is arguably rich in idioms, I am not aware of a dedicated study to idiomatic phrases in the nominal domain. The only idiomatic expression of this sort given in the literature can be found in Nagano and Shimada (2015). They give the *no*-modifier *aka-no* ‘red’ which in combination with the noun *tan'in* ‘stranger’ denotes a complete stranger.

- (24) aka-no tan'in
 red-NO stranger
 'a total stranger' (lit. 'a red stranger')
 (Nagano and Shimada 2015: 122)

Similar to *white lie* given above, this seems to be a case of a semi-idiom since the noun 'stranger' keeps its meaning and is modified by a modifier with an abstract meaning. As expected, predicative use is completely impossible.

- (25) *Kono tan'in-wa aka-da
 this stranger-TOP red-COP
 Only: #'This stranger is red.'

Not only is a figurative meaning involved here, the phrase can also be defined as *non-free* pace Mel'čuk (2012) as the two constituents only yield the intended meaning when they co-occur.

In fact, many such non-free phrases in the DP-domain can be found in Japanese and strikingly almost all are found with *no*-modifiers.¹⁰ These include for example the DP *anmoku-no ryōkai* 'tacit agreement'. The lexeme *anmoku* 'tacit' – which is translated as 'tacit', but literally means something akin to 'not saying anything' – is attested 470 times on the Balanced Corpus of Contemporary Written Japanese (BCCWJ).¹¹ Upon closer inspection, it occurs as an attributive modifier *anmoku-no* 'tacit' 350 times, but never in predicative position or as a noun. Besides miscellaneous (6 times), all other uses are either adverbial (22) or as part of Sino-Japanese compounds (92), most prominently *anmoku-chi* 'tacit knowledge'. Out of the 350 attributive occurrences, 112 are in combination with the noun *ryōkai* 'agreement', others include *rūru* 'rule' (36) and *zentei* 'hypothesis' (14). Given below is an example sentence containing *anmoku-no ryōkai* and illustrating the impossible predicative use. This is also argued for in Muraki (2012).¹²

¹⁰ Some exceptions are given in Okami (2012), namely *i*-adjectives denoting COLOR for example *aka-i ito* 'red string' denoting a close connection. However, since they apparently do not have to be adjacent to the nouns they modify, their actual status is questionable and I will omit them in the discussion here.

¹¹ <https://chunagon.ninjal.ac.jp/auth/login> (Maekawa et al. 2014). Unfortunately, no tool for tagging collocations is available for the BCCWJ. The numbers reported in the following, regarding attributive predicative and use as noun can be verified here <https://osf.io/u9txp/>. See also Abe et al. (2022) for a similar analysis.

¹² I thank Ken Hiraiwa for confirming the judgment of the corresponding predicative examples.

- (26) a. Futari-dake-no himitsu-ni shi-te-ok-ō to
 two-only-NO secret-DAT do-GER-prepare-EPIS COMP
 anmoku-no ryōkai-ga deki-te-i-mashi-ta.
 tacit-NO agreement-NOM can.do-GER-be-AUX.POL-PST
 ‘To make it a secret shared only by two, a tacit agreement was
 created.’¹³
- b. *Deki-te-i-ta ryōkai-wa anmoku-dat-ta.
 can.do-GER-be-PST agreement-TOP tacit-COP-PST
 Intend.: ‘The created agreement was tacit.’

Therefore, quite similar to the English phrase *tacit agreement* and the German equivalents *stillschweigende Übereinkunft* and *stillschweigendes Abkommen* respectively, *anmoku-no* cannot appear in predicative position, is direct-only. Since it can occur with a variety of head nouns and keep the meaning ‘tacit’ it is likely a modifier taking part in collocations.

Another non-free modifier, which is considerably more restricted in its choice of head nouns, is *higō-no* ‘unnatural’. It is attested on the BCCWJ 55 times, 47 times out of which are in attributive use (46 -no and 1 -na), 7 are as adverb, 1 contains a white space. Crucially, no occurrences in predicative position or as a noun are attested. *Higō-no* is attested only with two nouns: *shi* ‘death’ (36 times) and *saigo* ‘end’ (10 times). In fact, although we can translate this modifier with ‘unnatural’ or ‘violent’, what is actually meant is the absence – indicated via the negative prefix *hi-* – of *good deeds* or *karma*. This means that this modifier has a stronger idiomatic flavor.

In this regard, it is striking that most uses of the DP *higō-no shi/saigo* are part of the even larger verbal expression *higō-no shi/saigo-wo togeru*, meaning ‘to meet an unnatural/premature death’, namely 32 out of the 46 results. An example is the following.

- (27) a. Nanninka-no Kirisuto-kyōtō-wa higō-no
 several.people-NO Christianity-believers-TOP unnatural-NO
 shi-wo toge-ta.
 death-ACC meet-PST
 ‘Several Christians met an unnatural death.’¹⁴
- b. *Nanninka-no Kirisuto-kyōtō-ga toge-ta
 several.people-NO Christianity-believers-NOM meet-PST
 shi-wa higō-dat-ta.
 death-TOP unnatural-COP-PST
 Intend.: ‘The death several Christians met was unnatural.’

¹³Nakanishi, Rei (2003): *Yotō*. Tokyo: Shinchōsha, via BCCWJ, 2023/11/09.

¹⁴Ōno, Kazumichi (2001): Translation of Michelet, Jules: *Bible de l'humanité*. Tokyo: Fujiwara shoten, original: 1864, via BCCWJ, 2023/11/09. Note that potentially, sticking to the religious dimension of the modifier, a translation along the line of ‘undignified’ might be more appropriate.

This suggests that *higō-no shi* is an idiomatic phrase, or actually one part of a bigger verbal idiomatic phrase and that *higō-no* is a direct modifier.

Finally, another relevant modifier to be discussed is *kōki-no* ‘curious’. Ignoring the over 700 occurrences of this lexeme in the Sino-Japanese compound *kōki-shin* ‘curiosity’ (*kōki* + *kokoro/shin* ‘curious’ + ‘heart’), this lexeme occurs 69 times as a modifier in attributive position (66 times with *-no* and, interestingly, 3 times with *-na*), once as a noun and never with the copula. All other uses are adverbially (9 times). 61 out of the 69 attributive occurrences are with nouns with the literal meaning ‘eye’ and the figurative meaning ‘look’ or ‘gaze’, namely *me* (39), *manazashi* (6), *gan* (6) and *shisen* (7). Compared to *me*, the others can be described as Sino-Japanese nouns with the same meaning from a higher register. Again, predicative use is impossible as shown below.

- (28) a. Shikashi kare-ga kōki-no me-de mi-rare, ōku-no
 but he-NOM curious-NO eye-INS see-PASS many-NO
 hito-ga kare-no hanashi-wo kiki-ta-gat-ta koto[...]
 people-NOM he-NO story-ACC hear-VOL-seem-PST fact
 ‘But the fact that he was viewed with curious eyes (a curious gaze)
 and many people wanted to hear his story [...]’¹⁵
 b. *Kare-ga mi-rare-ta me-wa kōki-dat-ta.
 he-NOM see-PASS-PST eye-TOP curious-COP-PST
 Intend.: ‘The eye/gaze he was viewed with was curious.’

This restriction to a certain kind of head nouns indicates that *kōki* same as *higō* is non-compositional, therefore closer to the group of idiomatic modifiers than to modifiers partaking in collocations. On the other hand, it should be noted that since both modifiers appear only with a very restricted set of nouns their main feature seems to be non-productivity and since they in each case keep their meaning, the only one they seem to have in fact, they could be argued to be semantically compositional after all (Ken Hiraiwa p.c.). The question then is if they are true idioms, but the syntactic position discussed in the next subsection might bring some light on this.

4.2 Syntax

The next question is where these modifiers are situated in the DP. Taking into account the direct character of the modifiers in question they should be situated in the direct domain of the DP, which is lower than the indirect domain (Cinque 2010, 2020). Svenonius (2008), and see Kim (2019), has argued that idiomatic modifiers are hosted by a specific functional projection. He assumes that this

¹⁵Ogawa, Ryō (2002): Doreishōnin Soniē - 18-seiki Furansu no doreikōki to Afurika-shakai, Tokyo: Yamakawa Shuppansha, via BCCWJ, 2023/11/09.

projection is a category-less root phrase, an idea borrowed from Distributed Morphology (Halle and Marantz 1993, 1994). Such root phrases occupy the lowest position among the functional projections in the extended noun phrase and directly dominate the noun. This, in turn, explains why idiomatic modifiers, as seen in English, must occur in the surface structure directly adjacent to the noun. In the DP *wild Minnesotan rice* in (22), then, *wild* is not embedded in the specifier position of a root phrase but in the specifier of some other functional projection higher in the DP. This, however, raises the question whether also modifiers appearing in collocations are situated in such root phrases, because as shown above they can in some instances be separated from the noun.

The Japanese modifiers discussed above for which a stronger idiomatic flavor and less productivity were detected can never be followed by another modifier when modifying a noun. See first (29).

- (29) a. minna-no kōki-no manazashi
 everyone-NO curious-NO gaze
 ‘everyone’s curious gaze’
 b. *kōki-no minna-no manazashi
 curious-NO everyone-NO gaze

Note that this behavior is not due to the nature of *minna-no* ‘everyone’s’. As shown below, this modifier can intervene between non-idiomatic, that is free, modifiers and the head noun (Ken Hiraiwa p.c.).

- (30) a. minna-no aka-i doresu
 everyone-NO red-I dress
 b. aka-i minna-no doresu
 red-I everyone-NO dress
 ‘everyone’s red dresses’

The adjacency facts apply to other idiomatic phrases as well, for example *aka-no tan’in* ‘red stranger’ given in (24) does not allow an intervening relative clause (31).

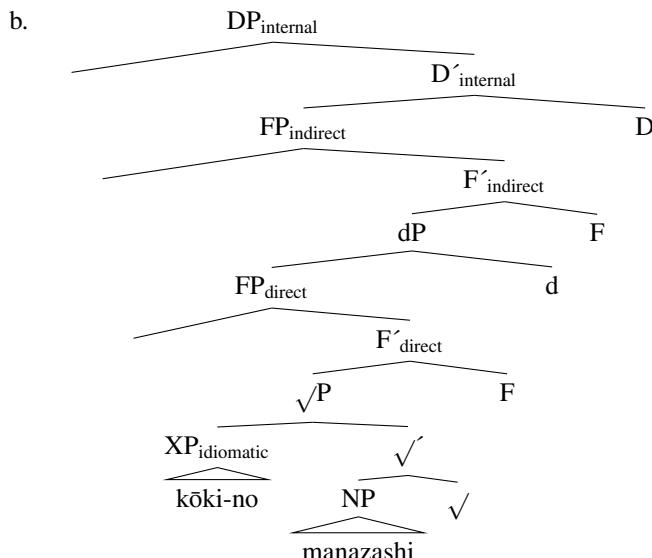
- (31) a. [dare-mo shira-na-i] aka-no tan’in
 who-EMP know-NEG-I red-NO stranger
 ‘the total stranger that no one knows’
 b. *aka-no [dare-mo shira-na-i] tan’in
 red-NO who-EMP know-NEG-I stranger

And finally note that this is true also for the DP *higō-no shi* ‘unnatural death’ (Ken Hiraiwa p.c.).

- (32) a. kōtsujiko-ni-yoru higō-no shi
 traffic.accident-DAT-due unnatural-NO death
 ‘an unnatural death due to a traffic accident’
 b. *higō-no kōtsujiko-ni-yoru shi
 unnatural-NO traffic.accident-DAT-due death

Therefore, I argue that the analysis of Svenonius (2008) is correct for Japanese as well and, although (even direct) modifiers do not really abide by ordering restrictions in this language (Sproat and Shih 1991, Laenzlinger 2011), idiomatic modifiers are one type of modifiers for which this is the case. The relevant structure is given below.

- (33) a. kōki-no manazashi
 curious-NO gaze
 ‘curious gaze’



To clarify: Such modifiers are situated in the part of the DP-internal domain reserved for direct modifiers. This part is separated from the indirect domain via the projection *dP* (Cinque 2010, 2020). Inside the direct domain, this root phrase occupies the lowest position explaining the adjacency facts.¹⁶

¹⁶I have displayed functional projections for indirect and direct modifiers respectively simply for the sake of illustration. Following standard cartographic assumptions, all relevant functional projections are always there structurally even when their specifier positions are not filled.

The question is now whether this extends to *anmoku-no* ‘tacit’ which was identified as part of collocations above. As it turns out, as was true for German, such modifiers can be separated from their head noun (Ken Hiraiwa p.c.).

- (34) a. fukakai-na anmoku-no ryōkai
 mysterious-NA tacit-NO agreement
 b. anmoku-no fukaka-ina ryōkai
 tacit-NO mysterious-NA agreement
 ‘mysterious tacit agreement’

This suggests that modifiers such as *anmoku-no* are not hosted by this root phrase, although they are likely still situated in the direct domain.

The same holds for modifiers receiving an internal theta role from the noun for which Kim (2019: 130) argues based on Korean that they are also embedded in a root phrase. She shows that as with idiomatic modifiers no other modifier can intervene between such modifiers and the head noun as well. This is shown in (35) where *kyengcey* ‘economy’ is the internal (object) argument of *kayhyek* ‘renovation’ and according to the judgment of the author must be immediately adjacent to the noun.

- (35) a. sin kyengcey kayhyek
 new economy renovation
 b. *kyengcey sin kayhyek
 economy new renovation
 ‘a new renovation of the economy’ Korean (Kim 2019: 130)

However, this is not the case in Japanese. As the translation of the relevant example shows, permutation is easily possible.

- (36) a. arata-na keizai-no kaikaku
 new-NA economy-NO renovation
 b. keizai-no arata-na kaikaku
 economy-NO new-NA renovation
 ‘a new renovation of the economy’ (Ken Hiraiwa p.c.)

Therefore, I argue that it is only idiomatic modifiers that are situated in these root phrases.

5 Final remarks

This paper has argued that modifiers appearing in non-free phrases in Japanese are one type of direct modifiers, thereby dismissing the claim that this lan-

guage lacks direct modification entirely. It was shown that the relevant type of modifiers cannot appear in predicative position. The modifiers under question then are non-free due to the fact that they underly some constrained use, both reflecting the choice of their head nouns as well as their syntactic role as direct modifiers. Furthermore, as a side note, the fact that all these *no*-modifiers do not exhibit nominal use either, highlights the distribution of this morphological group across different word classes. Finally, I argued following Svenonius (2008) that modifiers with a more idiomatic character are situated in category-less root phrases immediately dominating the noun, but that this does not seem to be true for collocations and thematic modifiers.

Of course, I essentially only focused on a very small number of modifiers here. For future research, it is desirable to extend the inventory of such modifiers and to, ideally, set up a database, where such modifiers are tagged in Japanese according to their constrained character and the idiosyncratic nature of the DPs they appear in.

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Two types of prosodic diversity masking Universal Grammar, exemplified in Igbo (Benue-Kwa, Niger-Congo)

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The popular phonemic concept was pushed into an untried field.
(Bolinger 1965: 3)

The assignment ... to a tone or pitch accent category depends entirely on the depth of the analysis. ... Viewed in this light, a tone language ceases to be a special, exotic type of language.
(Williamson 1967: 864)

1 Exoticisme, non merci

Expectedly or not, major traits of prosodic diversity across natural languages track morphosyntax. (i) The iambic vs. trochaic option, set already *in utero*, predicts the asymmetric linear order of phrasal heads and complements after birth and after SpellOut (Nespor et al. 2008). (ii) Controlling for the direction of headedness, F₀ excursion is a proxy for covert wh-movement (Richards 2010). For starters.

Such generalizations, being “intermodular” (Scheer 2010) i.e. derivationally abstract, are unreachable from primary data tagged *ab initio* with morpheme glosses and construction labels by an inductive “discovery procedure” (Chomsky 1957: 51). Nor does descriptive opacity dissolve simply by copying taxonomic artefacts into generative notation – not without first reanalyzing them with ‘native’ i-language concepts like cyclic (‘nuclear’) stress, a rule predicting peaks of perceived pitch in compounds and sentence constituents (Chomsky et al. 1956: 71ff., Bresnan 1971, Cinque 1993, Zubizarreta and Vergnaud 2006, Richards 2017 among many others).

Exhibit A of prosodic underanalysis is the toneme. Trialled in British Hong Kong, South Africa and southeast Nigeria as shorthand for “the tunes of the

texts” (Jones and Woo 1912: ix, cf. Jones and Plaatje 1916, Ward 1933, 1936), it spread worldwide after WW2 as a cookbook “technique for determining the number and type of pitch contrasts in a language” (Pike 1948, cf. Colby 1995) – mainly, contrasts between items glossable as graphic ‘words’ in a foreign analyst’s foreign language. Colonial and missionary fieldwork percolated to MIT Building 20 – “the magical incubator” of Cold War military spinoffs that midwifed the computational cognitive sciences (Penfield 1997, libraries.mit.edu/mithistory/research/labs/lcs) – to become the secondary sources for a “generative theory of suprasegmentals” alias “the autosegmental theory” (Goldsmith 1976: 27, 50).

2 Tonemark trouble

Early generative complaints that tonemes block descriptive adequacy (McCawley 1978, Woo 1967, Williamson 1968, Clark 1978, Kim 1979) were rapidly rebuffed on mostly theory-internal grounds (Clements and Ford 1979, Clements and Goldsmith 1980, Poser 1984: 37), but while tonologues won the high-altitude skirmishes in the “battle of the mind-fields” (Goldsmith and Laks 2019), down on the ground the Westafrican *Lebenswelt* was less impressed. Akan and Igbo literates, although early adopters of phonemic alphabets, remain tonemark refuseniks until today, e.g.:

As a tone language, every syllable (all vowels and consonants) are tone bearing units in Akuapem Twì. But tone marking is not a feature of the orthography of Akan, or of any Ghanaian language, hence tone is not marked in writing. (Kotey 1998: 12)

Passive resistance is prudent, if “marking tone reduces fluency” (Bird 1999) and “can be confusing, even for native speakers” (Dolphyne 1996: 5). Dolphyne’s Twì L2 primer is toneless, save for two examples and an audiotape attached on the behaviorist theory that “tone is best learnt by listening... over and over again” (Dolphyne 1996: 5).

One difficulty is downstep. A Twì “pronunciation dictionary” translates English ‘box’ as *àdákā* with a final macron (Kotey 1998: 20) while a “proficiency course” gives *àdá!ká* a phonetic juncture sign (Bodomo et al. 2010: 115) but neither marking helps much. The distribution of “!” between adjacent high tones is “nonautomatic” (Stewart 1965) i.e. arbitrary, and the ‘mid’ macron is worse because it entails the absurdity that “a tone following a mid tone on the same [pitch] level is a high tone” (Green and Ígwè 1963: 6f., cf. Winston 1960, Welmers 1973: 84). This ‘mid’ rule is inobtrusively vacuous for phrase-final word-final vowels, but pre-final downsteps abound in Igbo and the ‘mid’

macron tricked an Igbo-speaking linguist into writing a level final span with two completely fictive downsteps (Ógboónyá 1975: 111).

- (1) “ákwa ūfōdū” [sic] ‘some cloth(es)’
 (vs. intended ákwā ūfōdụ with two downsteps, not four)

‘Mid’ malfunction notwithstanding, an Igbo-speaking phonetician confidently denied downstep (Íkekeonwú 1982), then her Igbo-speaking student defended a denialist dissertation (Ányaanwú 1998: 47) and caused new confusion by combining the ‘mid’ mistake with the juncture diacritic (Ányaanwú 2003: 14).¹

- (2) a. “É!dé!lé !yá” [sic] ‘Don’t write it!’
 (vs. intended É!délé yá with one downstep, not three)
 b. “Á!dó!ló !yá” [sic] ‘Don’t drag it!’
 (vs. intended Á!dóló yá with one downstep, not three)

Similar mistakes crop up in student scripts too often to be individual lapses versus fallout of a paradigmatic flaw. Christaller’s neat tonemarking of Twì (Christaller 1875: 15) was conceivably unknown to Igbo-speaking linguists, even after L. Boadi the top Twì grammarian spent two years as department head at the University of Nigeria, but it’s less believable they could have missed three landmark Igbo books transcribing pitch by Christaller’s syntagmatic economy: (i) a syllable with no mark is read as copying the preceding pitch, and (ii) successive H-marks mark successive H domains separated by phonetic downsteps (Swift et al. 1962: 49f., Welmers and Welmers 1968: iv, Nwáchukwu 1976a: 20f., cf. Tucker 1964: 600f., Roberts 2011: 84).²

- | | | |
|-----|-----------------|------------------|
| (3) | Igbo (LL) | Úchèneídù (HLHL) |
| | Nwáchukwu (HHH) | Éménanjo (H!HHH) |

Christaller-style tonemarks (3) are useful across BK – the Benue-Kwa/East Volta- Congo “dialect continuum” of Niger-Congo (Williamson and Blench 2000: 17f., cf. Stewart 1994) – except for BK2, a geographically contiguous

¹In (2) I’ve replaced Ányaanwú’s IPA vowel glyphs with their Igbo orthographic counterparts.

²For Swift et al. (1962) and Nwáchukwu (1976a, 1983), non-initial H marks in a sequence are not acutes ['] à la Welmers but vertical lines ['] or macrons [=] (Williamson 1984: 42). Nwáchukwu (1984), Nwáchukwu (1987: 3f.), Nwáchukwu (1995) made them all acute. In I zoñ [“I jo”]. (Williamson 1965: 25) used syntagmatic marking with initial L stretches unmarked à la Christaller, but later switched to paradigmatic tones, marking all H syllables individually while leaving all Ls unmarked (Williamson 1978, 1988). A special diacritic was then needed for downstep (in eastern varieties), while (in central dialects) a phrase-final run of H syllables got a hachek [=] to show an extended run of H starting on the hachek (Nwáchukwu 1983: xxvii). At Nsúká the taboo on Nwáchukwu’s work and the departmental turn to down-step denial may not be unconnected to official ostracism of Nwáchukwu in retribution for his resolute trade-union activism (cf. Nwáchukwu 2006).

and syntactically innovative subclade comprising Yorùbá, Ìdòmà, Nupe and Gbè, where lexical pitch contrasts are ternary, so each syllable must be separately labeled H [] or L [] or else left unmarked as a true M – the glottal rest state of “neutral tone” or “‘natural’ pitch” (Woo 1969: 13, 246, cf. Siertsema 1958: 583, Akinlabí 1985, Manfredi 2009, 2020). Paradigmatic ternary tonemarks – popularly known in Nigeria by the *solfeggio* slogan *dò-re-mí* – were so well received in Yorùbá schools Crowther (1852: ii) (cf. Àjàyí 1960) that, when Ìgbo literacy started to reboot “after the blackout” of Biafra (Éménanjo 1984a, cf. Áfiègbó 1975, Ógbálú 1975, Àchebé 1976, Nwáchukwu 1983). Ìbàdàn linguists prescribed *dò-re-mí* to the southeasters without pausing to check whether the downstep-heavy, binary prosody of the BK1 zone would be better served by Christaller’s tonemark economy than by Crowther’s.

Paradigmatic *dò-re-mí* tonemarks work well in Yorùbá but they’re still imperfect, because the BK2 languages don’t lack syntagmatically conditioned pitch lowering effects sometimes called downstep (Armstrong 1968, Courtenay 1971). For example Bámgbósé (1966) introduced a diacritic “. ” for “assimilated low tone” in order to distinguish minimal pairs which, after elision of a vowel supporting L tone, would otherwise merge upon the page (4-a-b). No diacritic is needed in (4-c) because the initial L of *òwú* ‘cotton’ is independently audible on the following syllable [... wùú] thanks to famous coarticulation effects between the two positively specified pitch gestures H and L in either order (Akinlabí 1985, Akinlabí and Liberman 2001).

- (4)
 - a. *Oló.kun* (MH!M) ‘epitome/possessor of *òkun* LM the ocean’
olókun (MHM) ‘epitome/possessor of *okun* MM energy’
 - b. *oló.dù* (MH!L) ‘epitome/possessor of an *òdù* LL clay cauldron’
olódù (MHL) ‘epitome/possessor of an *odù* ML 8-bit oracle sign’
 - c. *olówùú* (MHLH) ‘epitome/possessor of *òwú* LH cotton’
olówú (MHH) ‘epitome/possessor of *owú* MH jealousy’

Bámgbósé himself would write *olówùú* as *oló.wú* (parallel to *ké.kó*, Bámgbósé 1965a: 26), using “. ” less as a downstep juncture – the pitch drop there is not abrupt – than as a placeholder for an abstract (phonologically implicit) L. Similarly in *Oló.kun* (4-a), the L of *òkun*’s elided initial vowel doesn’t lower the final M like a downstep, so much as it raises the preceding H, suggesting to a tonologist that “floating L tones survive into phonetic interpretation rather than being deleted” (Lániran 1992: 247, cf. Connell and Ladd 1990: 16-19), unless more simply the floatingness is just a phantom of elided spelling. The juncture marking becomes superfluous when (4) is retranscribed with disjunctive spelling (5), and this transparency is to be expected in a representation closer to “systematic phonemics ... determined by properties of both the syntactic

and the phonological component” (Chomsky 1964: 946).³

- (5) a. *Oní-òkun*
oní-okun
 b. *oní-òdù*
oní-odù
 c. *oní-òwú*
oní-owú

Disjunctive (5) also enhances transparency of semantics, reducing the ambiguous glosses of (4) to the regular alternation of *ní* between locative and possessive predication (Manfredi 1994, cf. Hale 1986: 239, Freeze 1992). But Yorùbá speakers may still prefer conjunctive (4) due to the phonological opacity of “syntactically motivated” *n~l* alternations (Oyèlá.ràn 1970: 224f., cf. Halle 1969: 24), nor can disjunctive spelling function as a general replacement for junctures, as it would be “futile” to impose it on “verb-nominal collocations” whose elisions can be morphologically opaque like *jó.kó/jókòó* ‘sit’, *já.de* ‘exit’ and *fé.ràn* ‘like’ (Bámgbósé 1964, Bámgbósé 1965b: 27). Sometimes conjunctive phonemic writing enhances syntactic transparency: eliding the vowel of the verb root supports a referential direct object while a pseudo-incorporation reading arises if the vowel of the nominal prefix elides instead, e.g. [VP *gbé ori*] → *gbérí* ‘rear (raise up) one’s (own) head’ versus *gbórí* ‘pick up (somebody’s) head’ (Oyèlá.ràn 1972: 184-187). Other cases of lexical opacity caused by prosodic footing are independent of vowel elision such as the deletion of lexical L, which is automatic even before a C-initial nominal as well as before the C-initial complementiser of a complement clause.⁴

Thus the initial plausibility of paradigmatic *dò-re-mí* tonemarks in BK2 languages, portraying Welmers’ discrete-level type (Welmers (1959)), is overrated. *A fortiori*, tonemic analysis of his terraced-level languages, typified in BK1, is much less successful.

Perhaps inspired by Christaller, Stewart (1965) treats downstep as a relation between successive tokens of H and L, but the domain of downstep is syntax not phonology. No principle of grammar forbids a lemma – a string with “the property of ‘listedness’ ” (Sciullo and Williams 1987: 2) – to have internal phrasal complexity, as is apparently the general case for open-class vocabulary (Hale and Keyser 1993). The downstep in Twì *àdá!ká* is abstract only if this item is treated as a taxonomic “minimum free form” (Bloomfield 1926: 156)

³Cases like (4-b) of avoidable opacity induced by taxonomic-phonemic conjunctive spelling, occur in vowel elision contexts even in prosodically binary (BK1) languages like Èdó (Ámayo 1976: 168).

⁴Before a clausal *adjunct*, L is unaffected because phrase-final, and its appearance correlates with an adverbial, non-argument interpretation of the clause (Déchaine 2001, cf. Awóyálé 2018).

alias “syntactic atom” (Sciullo and Williams 1987: 46), overlooking the fact that Twì can use this same listeme *sans* article as a referential indefinite (Sáäh 1994: 152, no tonemarks given).

- (6) Me-hu-u adaka.
 1SG-see-PST box
 ‘I saw a box’

If so, the string-internal downstep points the hearer away from a ‘word’ parse of *àdá!ká* towards a phrase with a segmentally null article that anchors referentiality prosodically. Other prosodic cues of typeshift from ‘bare noun’ to DP include pitch accent retraction in Greek and Germanic (Longobardi 2001: 362 fn.29, citing Lazzeroni 1995, Zwart 2003), linear “N-to-D” reordering in Romance (Longobardi 2005: 13), epenthesis of a “prefix vowel in a noun... associated with definiteness or indefiniteness” (Valinande 1984: 431) in Nande (BK1) and a “sophisticated abstract version of the nuclear stress rule” in Slavic (Kučerová 2007: 131).⁵

Peak global toneme arrived when the triumphal declaration of “English as a tone language” (Goldsmith 1978) begat universal “autosegmental-metrical” annotation of pitch (Pierrehumbert 1980, Ladd 1996) but ToBI the hand-coded hybrid struggles to shake off the toneme’s taxonomic heritage and has proved to be crosslinguistically frail: “each language’s ToBI system is unique” and “labor-intensive” even for “a confident labeler” (Jun 2022: 172, cf. Dilley et al. 2006, Dilley and Breen. 2022). Despite its fragility in the wild, ToBI’s luxuriant growth in the hothouses of “laboratory phonology” has overshadowed more restrictive metrical formats – be they arboreal or grid-based – which are abstractly shaped by syntax (Liberman 1975, 1995, Leben 1982, Zubizarreta 1982, Giegerich 1985, Idsardi and Purnell 1997).

In sum, intractable theoretical as well as practical difficulties betray the toneme’s taxonomic origin. A toneless, derivational alternative avoids these failures.

⁵Kučerová actually rejects prosodic analysis, opting instead for “semantics choosing from syntactically available structures” by an external “evaluation component” (Kučerová 2007: 108f.) but this choice amounts to tolerating an unrestrictively direct “phonology-semantics interface” (Jackendoff 2002: 126). The empirical question is whether PF-LF mapping is mediated by cyclic spellout (Chomsky 2001) but no answer is forthcoming in a permissively parallel “architecture” where syntax can be freely skipped (Jackendoff 2007). Similar modesty of theoretical ambition attends precompiled templatic syntax, where surface diversity is directly hard-wired into cartographic ‘parameters’ (Bošković 2008, 2012).

3 UG without tones

Leading tonologists belatedly agreed to collapse discrete tone features into “monodimensional ... scales ... directly interpreted in the phonetics” (Clements et al. 2011: 20f., Hyman 2011) effectively reducing them to “realisation ... trajectories” (Liberman 2018: 201) and inadvertently reprising Halle’s original argument about Russian voicing assimilation (Halle 1959: 22f.), namely not to split one phenomenon between two rule systems depending on whether a lexical contrast is accidentally subserved. A similar fate may meet the phonemic tones of ToBI, replacing them by automated pitch tracks as big data harvesting scoops up the untidy entities scattered in the wake of tonology’s “catastrophic success” (Downes 2021). But robots can’t fix collateral damage of a conceptual kind.

The toneme’s supreme mystery is its unbalanced typological distribution. This follows from nothing in phonology so, unless the tone map’s global lumpiness can be blamed statistically on genomes or the weather – (Dediu and Ladd 2007, Everett et al. 2015, cf. Liberman 2007, Wong et al. 2012, Hammarström 2016) – it must be a methodological mirage. Trubetzkoy already started down the road less traveled when, on reading Ward (1933), he noticed that non-lexical F₀ peaks appear in Igbo both on a dependent phrase and on its preceding, governing head (Ward 1936: 979 fn. 2), e.g. the bold and underlined H tones below.⁶

- (7) àní (LL) ‘land’ + òké (LH) ‘rat’ = àní óke (LH!HH) ‘land of rats’

As Clark remarks (Clark 1980: 107), it’s not going to be easy to explain two non-lexical H domains, split by a downstep, with just one constructional, ‘floating’ toneme, whether this is defined as a phonological L (Williamson 1970) or more commonly H (Welmers 1963: 442, Voorhoeve et al. 1969: 80, Hyman 1974: 118, Williams 1976: 481, Goldsmith 1976: 183f., Williamson 1984: 207, Clark 1989: 266). The floating L analysis rides on Stewart’s (1965) elegant theory of Twì downstep, but to succeed in Igbo it needs *ad hoc* rules of polarization and metathesis (Williamson 1970: 85f.). The floating H approaches, increasingly complex over time, gain enhanced descriptive coverage at the cost of extrinsically ordered, unrecoverable stratal interactions and proliferating abstract tones, becoming so stipulative as to be unfalsifiable.

Playing by the rules of the phonological “game” (Kaye 1988), Clark was unfortunately dissuaded from a “dynamic” analysis (Clark 1978) of Igbo and Japanese pitch patterns as McCawleyan accentual domains. Trubetzkoy had again anticipated this possibility, conjecturing that the superficially diverse phonetic profiles of ‘tone’ and ‘pitch accent’ mask abstract identity behind

⁶Trubetzkoy didn’t cite particular data but he must have seen this example in Ward (1936: 31).

independent differences of syllable weight (Trubetzkoy 1939: 180). Jakobson also reportedly endorsed this thesis of tone/accent isomorphism – ‘Igbo is Russian’ as paraphrased by M. Halle (*p.c.* 2004) – but any such reconciliation of comparative prosody has waited long for Igbo studies to catch up. Two enduring problems furnish preliminary proofs of concept.

4 Unpronounceable roots

Welmers & Welmers’ Igbo “learner’s dictionary” does not list “independent monosyllabic roots” (Welmers and Welmers 1968: iv). Instead, each lemma is given as a polysyllable with one or other prefix, making the string formally indistinguishable from a nominal expression. Any resulting homophony is tractable to the extent that a lexical item’s phrasal syntax is inferable from its gloss without a word-class label, as in this triplet:

- | | |
|---|------------------------|
| (8) <i>ibè</i> HL ‘to cut [x into pieces]’ | ⇒ transitive predicate |
| <i>ibè</i> HL ‘to perch [on location x], to roost’ | ⇒ locative predicate |
| <i>ibè</i> HL ‘counterpart/companion/opponent [of x]’ | ⇒ relational argument |

Besides unpronounceability, a second weakness of CV – the Africanist ‘verb’ – as a lexical address is the massive ambiguity of most such items unless accompanied by phrasal ‘inherent complements’ of great variety and abundance (Éménanjo 1984b, Nwáchukwu 1987, Hale et al. 1995, Úchechukwu 2005).

A third listing problem is tonal. Already for the dialect of Green and Ígwè (1963), the premise that a CV root is lexically specified with either H or L forces analysts to proliferate homophonous tonal affixes and absolute neutralization rules (Welmers 1970: 51, Goldsmith 1976: 122, Clark 1989: 10). Then, in a large dialect area that overlaps much of the post-1996 Ímò State and some nearby environs, matters get more difficult because predicate-type roots divide not in two prosodic classes but into three, of roughly equal size (Swift et al. 1962: 90-106, Éménanjo 1981, Clark 1989: 38ff., Déchaine 1993: 504), distinguished by the following pattern:⁷

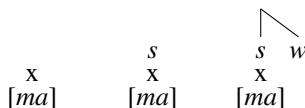
		‘stretch’	‘know’	‘throw’	
a.	infinitive	HL í-mà	H!H í-má	H!H í-má	
	negative	HL á-mà	H!H á-má	H!H á-má	
b.	subjunctive	LH mà-á	LH mà-á	HH má-a	
	affirmative	LL mà-ra	LL mà-ra	!HH má-ra	
c.	gerund	LLL ò-mú-ma	LLH ò-mú-má	LHH ò-mú-ma	

⁷N.b. a bad typo in Nwáchukwu (1995: 16) writes affirmatives of the ‘throw’ class with L instead of H.

The prefixed/nonfinite forms of ‘know’ and ‘throw’ are homophonous in Ímò (9-a) just as in the Green and Ígwè (1963) dialect, but suffixed/finite forms diverge: in Ímò, ‘know’ gets the pitch pattern of ‘stretch’ (9-b) and reduplicated nominalizations give unique prosodic contours to each of the three classes (9-c).

Tonal alchemy can transmute two tones into three tone classes with ternary valued features (Clark 1989, Hyman 1990, 2001, Mutaka and Kavutirwaki 2008), a Praguian anomaly (Halle 1957) but the real trick is to flip one paradigmatic scale into three overlapping yet distinct syntagmatic outcomes. Metrics need less legerdemain, because the lexicon is not forbidden to prelink foot structure, but prelinking is still optional and opacity can erode such information, as partly in the Green and Ígwè (1963) dialect and completely in Èdó, where the pitch patterns of predicate-type expressions are fully predictable from their moraic *skeleta* plus inflectional context (Wescott 1962: 22, Ogieraikhi 1973, Elugbe 1973: 171, Ámayo 1975: 21-23, Ámayo 1976: 230).

- (10) ‘stretch’ ‘know’ ‘throw’



To merge the listemes in (10) consistent with the pronunciations and inflections in (9) requires at least the following independent assumptions: (i) TP and DP are phases, (ii) Igbo is *pro-drop* with pronominal clitic agreement (Ézè 1995), (iii) reduplication is PF epenthesis in the head of *nP*, (iv) adjoined segments are nondistinct i.e. form a syntactic atom alias ‘word’, (v) trochaic feet parse left-to-right and (vi) ‘degenerate’ (nonbranching) feet are parsed only as a last resort.

- (11) a. infinitive/negative [TP PRO [T *i/a* [VP — ...]]]
- [
 s
 w
 x
]
]
- b. subjunctive [CP C [TP PRO [—*i*] -T [VP *t_i* ...]]]
- [
 s
 w
 x
]
]
- affirmative [TP [T *pro* [VP — ...]]]
- c. gerund [DP PRO [nP [n RED_i] [VP —*i*]]]
- [
 s
 w
 x
]
]

5 Grammatical tones in search of grammar

A logical consequence of tonology – coding the inherent pitch of translated lexical items taxonomically – is that any residual pitch differences obtained when ‘words’ combine in phrasal construction are ascribed to analogous tonal entities:

[T]he tone or pitch of the voice may serve two purposes: it may be the bearer of meaning in that it, and it alone, distinguishes one word from another (semantic tones) and it may be used to show grammatical relationships (grammatical tones). (Ward 1933: 30)

Enthusiastically applied by other colonial and missionary pioneers (Green 1949, Sharman and Meussen 1955, Welmers 1959, Voorhoeve 1965), “grammatical tones” were unevenly productive in fieldwork. Their density turned out to be systematically greater in binary, BK1 languages than among their ternary cousins of BK2. The great tonal riches harvested from the Cameroun ‘grass-fields’ post-counterinsurgency (Deltombe et al. 2011) led academic phonologists to treat “floating tones” as a feature not a theoretical bug, and to explain their existence with the historical conjecture that such entities are left behind after the erosion of archaic vowels and consonants behind (Hyman 1976, Hyman and Tadadjeu 1976, Williamson 1984 etc.).

The computational explosion of abstract tones accrued gradually, as Africanists moved from translated wordlists and short phrases to more complex Comrieian frames, but studies of unbounded syntactic environments eventually encountered new anomalies, where no presumptive morpheme is plausibly available to serve as a hypothetical tonal host. Such patterns are well described in Igbo (Swift et al. 1962: 247f., 303ff., Green and Ígwè 1963: 88, Welmers and Welmers 1968: 152, Nwáchukwu 1976a: 102ff., Nwáchukwu 1995) and analogous phenomena in Twì have inspired a new prosodic ontology: “tonal reflexes of movement” obtained by “a process of tonal overwriting” (Korsah and Murphy 2020). But before jumping on the bandwagon it’s excusable to ask whether adding a new set of tonemic epicycles might not enhance, but actually *reduce*, descriptive adequacy by obscuring more general patterns that would be expected if prosody is syntactic spellout.

In these examples, non-lexical pitch values are bolded in the text and underlined in the adjacent pitch transcriptions.⁸

⁸These data sample a much larger set collated in a publically available manuscript (Manfredi 2011). The interlinear gloss of the *-ru* and *-rv* suffixes as *-CL* abbreviating ‘argument-type clitic’ is one of many morphological analyses of this formative (Green and Ígwè 1963, Nwáchukwu 1976b, Clark 1989).

- (12) a. Úgo **wú**-ru úlò.
 U. emplace.**AFF-CL** house
 'Ùgo built [a/the] house'
 b. Úgo **mé**-re íhe.
 U. do.**AFF-CL** thing
 'Ùgo did something [w/positive implicature]'
- (13) a. úlò/úlo **Ugó wù**-ru [HL/LL LH LL]
 house/house.L U.H emplace.**AFF-CL**
 'the house that Úgo built'
 'the fact that Úgo built a house'
 b. (úlò) kè **Ugó wù**-ru [(H!H) L LH LL]
 house.H the.*pro* U.H emplace.**AFF-CL**
 '(the house,) the one that Úgo built'
 c. (Ó bù) úlò áhù ka **Ugó wù**-ru. [(H L) HL HL L LH LL]
 3s be house DEIC that U.-H emplace.**FIN-CL**
 'It's that house that Úgo built'
 'That's the (only relevant) house Úgo built'
 d. Òléé ihe **Ùgó mè**-re? [LH HH LH LL]
 which.*one.Q* thing U.H do.**AFF-CL**
 'What did Ùgo do?' [no positive implicature]
 ('Which is the thing that Úgo did?')
 e. Kè-dú ihe **Ùgó mè**-re? [LH!H HH LH LL]
 Q.*pro-BE* thing U.H do.**AFF-CL**
 'What did Ùgo do?' [no positive implicature]
 ('Which is the thing that Úgo did?')
 f. Gíní kà **Ugó mè**-re? [H!H L LH LL]
 what.Q that U.H do.**AFF-CL**
 'What did Ùgo do?' [no positive implicature]

In both (12) and (13), the derived L pitch of the roots *-wú* 'emplace' and *-mè* 'do' exemplify weak footing as expected in affirmative finite inflection *à la* (11-b) above.

In (13), each token of *Ùgo* is LH instead of the LL observed in (12).⁹ Rather than invent a new theory for a new observation, Tada (1992) compared this phenomenon to another successive-cyclic effect, the (mis-named) "stylistic" subject inversion in Romance (Kayne and Pollock 1978: 606, cf. Goldsmith 1981, Zubizarreta 2001). Then in a toneless theory the remaining task is less exotic: to derive the appearance of a phrasal *accent* on the edge of the subject

⁹Temporarily setting aside the constructionally derived, underlined tones of *úlò* 'house' in (13-a,b).

argument at the edge of a spellout phase that's crossed by a *wh*-dependency. An accent, but not a tone, potentially qualifies as an item of “intermodular translation” (Scheer 2010) e.g. as a candidate relational index by which “metrical boundaries... in narrow syntax” can become “prosodically active” (Richards 2016: 77) in a convergent derivation. By contrast, the systematic pitch effect in (13) is not reducible to a taxonomic morpheme of any conceivable kind unless a *deus ex machinā*, contrived simply to protect a fragile faith in tonemes from justified syntactic scepticism.

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Suprasegmentals in negation: A cross-modal perspective

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1 Introduction

Katharina Hartmann, whose academic achievements are celebrated with this volume, and I have a 30-year-long history of non-linguistic and linguistic interaction. We shared an apartment in Frankfurt for five years in the 1990s while we were both affiliated with the University of Frankfurt (she as PhD, then post-doc, and I as PhD). In retrospect, it seems to me that our conversations at home only rarely revolved around linguistic matters – except for the occasional gossip, of course. Yet, there has been a noteworthy, and coincidental, overlap in research focus in the late 1990s, and it is this incident that served as inspiration for my contribution to the volume.

In that period, Katharina and I had both decided to extend the scope of our linguistic interests by learning an “exotic” language: she chose Hausa, while I took advantage of the fact that German Sign Language (Deutsche Gebärdensprache, DGS) was offered for the first time at our university. Once we had acquired basic skills, it just so happened that both of us – independently of each other – selected the realization of negation in the respective language as topic of investigation. We noticed certain similarities between the two languages, which, in an odd sense of circularity, made her reference unpublished work of mine in a talk (Hartmann 1999), while I referred to that very talk in the published version of the chapter she had drawn information from (Pfau 2001).¹

In the present chapter, I zoom in on a characteristic that the two (and many other) languages share, but which has not been discussed in much detail in the aforementioned works: the role of suprasegmentals in the expression of negation. In Section 2, I start by sketching selected properties and functions of suprasegmentals in the two modalities.² Section 3 addresses negative particles

¹Only quite recently, we finally embarked on a joint research project on (asymmetric) coordination in Sign Language of the Netherlands (Hartmann et al. 2021).

²In sign language linguistics, the term “modality” is commonly used to refer to the modality

that are specified for suprasegmental features, while Section 4 looks at verbs and how they may be suprasegmentally modified in negative contexts. The possibility of spreading of suprasegmental features is discussed in Section 5. Section 6 concludes.

2 Suprasegmentals across modalities

Suprasegmentals are speech features that associate with elements at the segmental layer, that is, they constitute a layer on top of the segmental layer. The category of suprasegmentals includes features like stress, duration, and tone, which fulfill important linguistic functions at various levels. As for stress, think, for instance, of the English minimal pair *convert* – *convért*, where the former, with stress on the first syllable (marked by the accent), is a noun, while the latter, with stress on the second syllable, is the verbal counterpart – yet, at the segmental level, the two words are identical.

In the following, we will limit our attention to tone, which has been shown to be capable of conveying lexical, morphological, and syntactic meaning in many languages. The Cantonese examples in (1-a) illustrate lexically significant tone. The syllable *yau* can be articulated with six different tone values, yielding six different meanings, three of which are given in (1-a): high-level (*á*), mid-level (*ā*), and low-level (*à*) tone (adapted from Yip 2002: 2). In contrast, in the Hausa (Chadic; Nigeria) example in (1-b), tone conveys morphological meaning. In this language, the N-forming suffix is a low tone which attaches to the stem, yielding a falling tone (*â*) (Newman 1992, in Yip 2002: 106).

- | | | | | | | | | |
|-----|----|------------|---|--------------------------|---|---------|--|-------------|
| (1) | a. | yáu | – | yāu | – | yàu | | |
| | | ‘worry’ | | ‘thin’ | | ‘again’ | | (Cantonese) |
| | b. | sháa | – | shâa | | | | |
| | | ‘to drink’ | | ‘drinking _N ’ | | | | (Hausa) |

In spoken languages, the segmental layer is made up of consonants and vowels, and tones associate with tone-bearing units, typically vowels. As for the assignment of tone values to tone-bearing units, a tone may be inherently specified, it may be assigned in a specific context to a unit which is underlyingly unspecified for tone, or a lexically specified tone may be delinked and overwritten (Yip 2002).

Obviously, in sign languages, vowels and consonants do not play any role. Rather, it is generally assumed that the segmental layer consists of locations

of signal transmission, that is, the oral-auditive modality of spoken languages vs. the visual-spatial modality of sign languages (see, e.g., Meier 2002, 2012 for the impact of modality upon linguistic structure).

(L) and movements (M), which are sequentially combined to form syllables. Leaving many complexities aside, it has been argued that Ls correspond to consonants and Ms to vowels, i.e., that Ms generally constitute the syllable nucleus (e.g., Perlmutter 1992), and that the canonical sign is monosyllabic (Brentari 1998, Sandler 2008). Crucial in the present context is the observation that non-manual features (such as movements of the mouth, eyebrows, and head) can be coarticulated simultaneously with segmental material, and just as tone in spoken languages, such features may convey lexically, morphologically, and syntactically relevant information (Pfau 2016b).

For illustration, consider the examples in (2). Sign Language of the Netherlands (*Nederlandse Gebarentaal*, NGT) features a sign which we gloss as AREA in (2-a). The sign is articulated with a 5-hand (all fingers extended, palm down) performing a circular movement in the space in front of the signer. In context, the meaning of this sign is commonly disambiguated by a so-called mouthing, i.e., the silent articulation of a Dutch word; depending on the accompanying mouthing, the general sign can take on specific meanings like ‘country’ (2-a), ‘room’, or ‘situation’. In this way, the mouthing functions much like tone in the Cantonese examples in (1-a): it is articulated simultaneously with segmental material, and it disambiguates meaning.³

- (2) a. LAST YEAR INDEX₁ SEVEN AREA
 ‘Last year, I visited seven countries.’ (NGT)
-)(
- b. POSS₁ FRIEND HOUSE BUY
 ‘My friend bought a small house.’ (DGS)

Example (2-b) illustrates the use of a morphological non-manual in DGS. In DGS, just as in many other sign languages, the diminutive and augmentative can be realized by configurations of the cheeks. In (2-b), we observe that the cheeks are sucked in (glossed as ‘(‘) on the non-manual line) while the noun HOUSE is signed, thus marking the diminutive (Pfau and Quer 2010: 388). Note that the example does not contain a manual adjective (see Fornasiero (2023) for a detailed discussion of non-manual evaluative morphemes in Italian Sign Language).

These few examples thus illustrate that suprasegmental features exist in both

³Notation conventions: Signs are glossed in SMALL CAPS with English words that approximate the meaning of the respective sign. INDEX is a pointing sign which functions as personal pronoun, poss is a possessive pronoun. Number subscripts indicate spatial loci: 1 refers to the signer’s body (i.e., index1 is a first-person pronoun), 3 to a locus in the signing space (which can be interpreted as third-person). Non-manual markers that simultaneously accompany (strings of) signs are given above the gloss line, the length of the line indicating the scope (i.e., onset/offset) of the non-manual marker.

modalities, and that they may fulfill (at least) lexical and morphological functions. For sure, these are interesting similarities; however, we also need to point out some crucial differences (see also Pfau 2016b). First, while in spoken languages, the same articulator, the vocal apparatus, is involved in the production of segmental and suprasegmental material, sign languages employ a variety of independent articulators – the hands, head, mouth, eyebrows, and torso – all of which may contribute suprasegmental information. This implies that multiple suprasegmental features may in principle simultaneously accompany a single sign (Wilbur 2000), while tones in spoken languages can only combine sequentially. Second, in spoken languages, at least at the surface, every tone-bearing unit must carry a tone, while signs (e.g., HOUSE in (2-b)) are not obligatorily accompanied by suprasegmental features. Third, in sign languages, suprasegmental features may associate with L- and M-segments, while tones usually only combine with the syllable nucleus. In Section 5, we will see that these differences impact the behavior of suprasegmentals in sign languages.

3 Negative particles

Having sketched some basic properties of suprasegmentals in spoken and signed languages, we now turn our attention to negation. A first relevant observation regarding the role of suprasegmentals in negation concerns the fact that in tone languages which employ negative particles, these particles are lexically specified for tone. In the Musgu (Chadic; Cameroon) example in (3-a), this is a low tone on the clause-final particle (Meyer-Bahlburg 1972, in Dryer 2005: 454). In this context, we can, once again, bring Hausa to the stage. Hausa is interesting, as it involves split negation in most aspects, that is, a low-toned prefix combines with a high-toned clause-final particle (Caron 1990). In (3-b), we illustrate this pattern for the habitual aspect (Hartmann 1999). Hartmann argues that the prefix occupies the head of the negative phrase, while the particle is hosted by the specifier of NegP, which she assumes to be on the right.

- (3) a. à sədà cécébè **pày**.
 3SG.M know jackal NEG
 ‘He didn’t see the jackal.’ (Musgu)
- b. Kàndé **bà**-tá-kàn dáfà kíífíí **bá**.
 Kande NEG-3SG.F-HAB cook fish NEG
 ‘Kande usually doesn’t cook fish.’ (Hausa)

Negation is a domain of grammar that has been studied for a considerable number of sign languages from all over the world (Zeshan 2004, 2006a), and all sign languages studied to date employ negative particles (for overviews, see Quer 2012, Gökgöz 2021). Of relevance in the present context is the fact that

these particles are usually accompanied by suprasegmental features. It may not come as a surprise that the most common non-manual marker observed in negative contexts is a headshake ('hs'). In (4-a), we offer an example from Inuit Sign Language (*Inuit Uukturausingit*, IUR), a rural sign language that is used in some communities throughout Nunavut (adapted from Schuit 2013: 50). Next to headshakes, some sign languages use a backward head tilt ('bht') in the context of negation. This is clearly an areal feature, as the same non-manual is also used as a negative co-speech gesture in hearing communities in the Eastern Mediterranean area. Use of the backward head tilt is illustrated by the Turkish Sign Language (*Türk İşaret Dili*; TiD) example in (4-b) (Zeshan 2006b: 150).⁴

- (4) a. POLAR.BEAR SEE hs
 'I didn't see a polar bear.' (IUR)
- b. INDEX₁ TURKEY BIRTH bht
 'I was not born in Turkey.' (TiD)

Both IUR and TiD are so-called manual dominant sign languages, which implies (i) that the use of a negative particle is obligatory, and (ii) that the relevant non-manual only accompanies that particle. In this way, the examples in (4) are comparable to the ones in (3): all four languages employ clause-final negative particles that are specified for a suprasegmental feature. In the next section, we will see that other sign languages display a different pattern.

4 Suprasegmental negation

As first observed by Zeshan (2004) in a typological study involving data from 38 sign languages, there is an interesting typological dichotomy among sign languages when it comes to the realization of clausal negation. Next to manual dominant sign languages, we find non-manual dominant ones, in which the use of a negative particle is optional, and clauses are commonly negated by only a headshake.⁵ DGS belongs to this group, as is illustrated in (5-a), where

⁴For an insightful discussion of different hypotheses regarding the origin of gestural head movements signaling negation in spoken languages, see Bross (2020) for speculations about the grammaticalization of headshakes in sign languages in terms of Jespersen's Cycle, see Pfau (2015).

⁵In this short chapter, we cannot do justice to the complexities of sign language negation, but it is worth pointing out that recent studies indicate that the two-way classification originally proposed by Zeshan (2004) is not sufficient. Some sign languages present us with a hybrid system in that the negative particle is obligatory, but yet the headshake may extend beyond the particle (see, e.g., Rudnev and Kuznetsova 2021 for Russian Sign Language).

optionality of the clause-final particle is indicated by the brackets (adapted from Pfau 2002: 273). In DGS, the headshake obligatorily associates with (at least) the verb. It is worth noting that even when the particle is present, the verb must still be accompanied by a headshake.⁶ That is, (5-b), which is structurally very similar to the IUR and TID examples in (4), is ungrammatical in DGS. Pfau (2001, 2002, 2016a) assumes that the headshake on the verb is a featural affix located in the head of NegP, which combines with the verb after verb movement, while the particle occupies SpecNegP on the right. Just as in IUR, the particle is lexically specified for headshake. This implies that we are actually dealing with two separate suprasegmentals in (5-a), one lexical and one morphological. Phonetically, however, the two headshakes combine into one continuous headshake.

- (5) a. MOTHER FLOWER $\overline{\text{BUY}}$ $\overset{\text{hs}}{\left(\text{not} \right)}$
 ‘(My) mother does not buy a flower.’
- b. *MOTHER FLOWER BUY $\overset{\text{hs}}{\overline{\text{not}}}$
 ‘(My) mother does not buy a flower.’ (DGS)

It is thus possible, and actually common, in DGS to express clausal negation by means of only a suprasegmental feature. The following examples show that purely suprasegmental negation strategies are also attested in spoken languages. In Gâ (Kwa; Ghana), the realization of negation depends on the tense specification of the clause. Of particular interest is the past tense, where negation is marked only in the verb stem by means of vowel lengthening and high tone (6) (Ablorh-Odjidja 1968).

- (6) a. Mi-gbè gbéé kò.
 1SG.PST-kill dog ART
 ‘I killed a dog.’
- b. Mi-gbée gbéé kò.
 1SG.PST-kill.NEG dog ART
 ‘I did not kill a dog.’ (Gâ)

A tone change is also observed as one of multiple negation strategies in Maan (Mande; Liberia), a five-tone language. However, in this language, the tone

⁶We also find interesting structural differences within the group of non-manual dominant sign languages. NGT, for instance, behaves very similarly to DGS with respect to headshake patterns, but allows for two positions for the negative particle: clause-final (as in DGS) and pre-VP (Oomen and Pfau 2017). In American Sign Language (ASL), headshake patterns are different: the headshake may co-occur with only the particle, but in the absence of NOT, it cannot co-occur with only the verb in transitive sentences (Neidle et al. 2000, cf. also Pfau and Quer 2010); see also footnote 7.

change does not affect the verb stem but rather the subject marker, as is illustrated in (7), where the tone on the first-person marker changes from mid (ñ) to falling (ñ̄) (Becker-Donner 1965: 44)

- (7) a. ñ yídò.
1SG know
'I know.'
b. ñ̄ yídò.
1SG.NEG know
'I don't know.' (Maan)

Having demonstrated that suprasegmental negation is attested in both modalities, we now return to the alternative realization in (5), that is, the one that includes the negative particle. Comparable instances of split negation, whereby a negative particle and a suprasegmental modification go hand in hand, are also by no means uncommon in spoken languages. Here, we provide examples from Ógbrû, a Kwa language spoken in the Ivory Coast, as this language presents us with a particularly interesting pattern. We can see in (8-a)–(8-b) that clausal negation usually involves the combination of the post-verbal negative particle *mú*, which is specified for high tone, and a tone change from low to high on the pre-verbal aspectual marker. However, given a general tonal constraint which bans the appearance of three successive high tones, the negative particle never appears in sentences with monosyllabic high-tone verbs like *pá* ('buy') in (8-c). As a result, in such contexts, negation is realized only by tone change on the aspectual morpheme (8-d) (Mboua 1999: 15f).

- (8) a. Kirî ò búkù òkókò.
Kéré ASP ask.for.RES banana
'Kéré has asked for the banana.'
b. Kirî ó búkù **mú** òkókò.
Kéré ASP.NEG ask.for.RES NEG banana
'Kéré has not asked for the banana.'
c. Kirî à pá òkókò.
Kéré ASP buy.RES banana
'Kéré has bought bananas.'
d. Kirî á pá òkókò.
Kéré ASP.NEG buy.RES banana
'Kéré has not bought bananas.' (Ógbrû)

At the face of it, Ógbrû thus presents us with a situation that is highly reminiscent of what we described for DGS: sometimes, clausal negation is realized by a suprasegmental modification in combination with a particle that is specified for a suprasegmental feature; at other times, negation is realized by supraseg-

mental modification alone. Yet, it has to be acknowledged that what motivates the choice of strategy differs between the two languages. While we seem to be dealing with true optionality in DGS (5-a), in Ógbrû, the choice is fully predictable given an independent phonological constraint – that is, (8-b) could never be realized without and (8-d) never with the particle *mú*.

5 Spreading

We need to add one more complexity to the picture we are sketching here, viz. the fact that in non-manual dominant sign languages like DGS and NGT, the headshake is capable of spreading. In transitive clauses, it is, for instance, not uncommon for the headshake to also accompany the object, as shown in the DGS example in (9-a), where we leave out the optional negative particle. Crucially, the spreading does not impact the interpretation of the clause, that is, it cannot be argued to be a convenient strategy for marking the semantic scope of negation. Furthermore, it has been shown for both DGS and NGT that (non-pronominal) subjects are outside the scope of the headshake.

- (9) a. MOTHER $\overline{\text{FLOWER BUY}}$
 ^{hs}
 ‘(My) mother does not buy a flower.’
- b. INDEX₁ POSS₁ BROTHER INDEX₃ PROUD[^]₁PAM₃
 $\overline{\text{stolts}}$
 ‘I am proud of my brother.’ (DGS)

Other non-manuals are capable of spreading, too. In (9-b), we observe spreading of a mouthing from the adjectival predicate PROUD (*stolz* in German) onto the adjacent auxiliary PAM ('person agreement marker'), which realizes subject/object agreement by moving from locus 1 close to the signer's body towards a locus in the signing space associated with the non-present referent BROTHER (Pfau and Steinbach 2006: 323). It has been argued that such instances of spreading can be indicative of cliticization, whereby a functional sign combines with a lexical sign, resulting in a single prosodic word (Sandler 1999, Bank et al. 2017, Pfau 2016b). In fact, in (9-b), the auxiliary also manually attaches to the preceding adjective (indicated by the ‘^’ symbol): the two signs are articulated with one continuous movement, and we observe regressive handshape assimilation. That is, spreading of mouthing, sometimes in combination with manual modifications, may mark a prosodic domain.

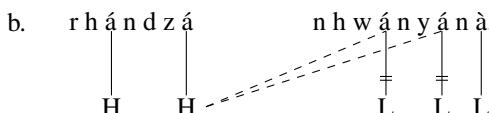
Pfau (2016b) and Oomen and Pfau (2017) speculate that headshake spreading may also be prosodically motivated – at least in DGS and NGT.⁷ This could

⁷For ASL, Neidle et al. (2000) claim that the spreading domain of the headshake is syntactically determined. In the absence of the particle NOT, which occupies a position between subject

explain (i) why nominal subjects fall outside the scope of the headshake, in contrast to subject pronouns, which are more easily prosodically integrated, and (ii) why prosodically light clause-final signs, like ‘palm-up’ and pointing signs are commonly accompanied by headshake. Yet, further research is necessary to verify this claim.

The potential to spread is another characteristic that tones in spoken languages share with non-manuals in sign languages. Spreading of a non-manual – be it a mouthing or a headshake – from one sign onto another could then be likened to cases of external tone sandhi in spoken languages. In (10-a), we provide one representative example from Tsonga (Bantu; South Africa). Underlyingly, the noun *nhwànyànà* ('girl') carries only low tones. However, when following a high tone verb, the high tone spreads onto all syllables of *nhwànyànà* except the last one (Baumbach 1987: 48). In (10-b), we illustrate this spreading process.

- (10) a. nhwànyànà → ú rhándzá nhwànyànà.
 girl he likes girl
 ‘He likes the girl’ (Tsonga)



While external tone sandhi is a common process in spoken languages, we did not come across examples where it would be observed in the context of negation (e.g., spreading of the tone associated with a negative particle onto an adjacent word). Still, we would like to argue that the Tsonga example in (10-a) can be compared to the DGS example in (9-a), in that a suprasegmental feature associated with a verb spreads onto a direct object. In the DGS case, the relevant suprasegmental (headshake) is of a morphological nature, while in Tsonga, it is lexically specified. Also remember from our discussion in Section 2 that the nature of spreading differs: while spreading in Tsonga requires delinking of lexically specified low tones (as indicated by the '=' symbol in (10-b)), delinking is not required in DGS, given that the object FLOWER is not underlyingly specified for a competing suprasegmental (it might, however, be specified for a suprasegmental feature that involves a different articulator, e.g., a mouthing). Given this qualitative difference between tones and non-manuals, it may well be the case that spreading of non-manuals is generally less constrained.

and VP, the headshake must spread over the c-command domain of Neg, i.e., over the entire VP. Consequently, in a transitive clause, both the verb and the object must be accompanied by headshake – in contrast to DGS.

6 Conclusion

Both spoken and signed languages make use of suprasegmental features that may fulfill lexical and morphological functions. Suprasegmentals are characterized by the fact that they associate simultaneously with segmental positions and are capable of spreading. In an abstract sense, it could thus be argued that sign languages are tone languages. Still, as has also been alluded to in this short chapter, there are also important differences between non-manual markers and tones.

Here, we focused on the role of suprasegmentals in the domain of negation, and our discussion brought to the fore some interesting similarities: in both modalities, we find cases in which negation is realized (i) by a negative particle that is lexically specified for a suprasegmental feature (tone vs. head movement), (ii) by a negative particle in combination with a suprasegmental modification on another element within the clause, and (iii) by means of only a suprasegmental feature.

More generally, we think that our study clearly illustrates why it is beneficial, and thus worthwhile, to include sign languages in typological studies – an approach that we hope will be more commonly implemented in future typological work.

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Inflectional verb tone in Buli

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1 Introduction

In Buli¹, an Oti-Volta language (Central Gur) spoken in northern Ghana, tone fulfills not only lexical but also grammatical function, in particular in the verbal domain. While most Gur languages are tonal and grammatical tone is not unheard of, information about the role of tone in verbal inflection in the language family is rare (but see Akanlig-Pare and Kenstowicz 2002, among others). By outlining how tone contributes to the inflectional marking in Buli this paper intends to contribute to the typology of grammatical tone (Palancar and Léonard 2016, Konoshenko 2017), showing that inflectional tone patterns in Buli convey important phrasal and morphosyntactic information. Building on prior work on tone in Buli (Schwarz 2003, 2007) simple clauses and complex constructions are scrutinized for inflectional tone.

The paper is organized as follows. In Section 2 a brief background on tone in Buli is provided. In 3 I outline the basic inflectional patterns as found in the simple predicates of main clauses, then turning to more complex constructions in 4 and concluding with short final remarks in 5.

2 Input and surface tones

This section provides a brief overview on the tonology in Buli as developed in Schwarz (2003, 2007), see also Schwarz (2009), with some minor modifications. There are three contrastive tones levels: Mid (M), High (H), and Low (L)², the tone bearing unit (TBU) being the syllable. Contour tones emerge in

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²The following conventions are used to symbolize high, mid, and low tones: H *ā*, M *ä*, L *å*. Unless explicitly marked, language data are provided with their surface tone realization, underlying tones are occasionally provided in slashes.

the context of morphological fusion or tone spreading.

Buli has a gender system based on common Gur (and Niger-Congo) “noun classes” (see Güldemann and Fiedler 2019 on the classification systems commonly referred to as such). Nominals including the controlling nouns in their indefinite form are not all overtly marked by inherently toneless suffixes. At the morphologically more complex definite noun form, on the other hand, noun class suffixes with grammatical H tones are present.

The L, M, or H tones assigned to the initial syllable of a (pro)nominal stem are here referred to as input tone. Input tones may extend over additional TBUs within or across morphemes if the latter do not provide tones of their own. In addition, regular postlexical phenomena affect the resulting surface tone.³ First, if there are toneless TBUs available, H-tones do not spread from a given stem-initial associated tone input as other tones (i.e., a single input tone is associated with multiple TBUs). They rather propagate as “H clones”, each H assigned to its own, formerly toneless, TBU. Second, H tones that got cloned, i.e., associated with an intrinsically toneless TBU, are in phrasefinal contexts replaced by L boundary tones, this way yielding complementary surface tones, such as on the inherently toneless plural suffix *-sa*: in non-final contexts it surfaces H (*bí-sá bà-tà* ‘three children’), in phrasefinal position L (*bí-sà* ‘children’). Third, L tones are capable to spread on TBUs with a H, dissociating the existing H tone. The resulting surface tone depends on the availability of another H to the right. If there is no other H TBU following (1), the H tone invaded upon reassociates to the right edge of its former syllable now sensitive to its moraic structure. This yields a surface M tone on monomoraic and a rising LM tone on polymoraic syllables that were formerly H. With a second H tone syllable available (2), the dissociated H tone reassociates with the H at its right. Note that L-spreading operates after the determination of L boundary tones and is common in compounding and other syntagmata.

- (1) L spreads, H reassociates left: /L **H** non-H/ → [L **L(L)M**] polymoraic
→ [L **M**] monomoraic
- (2) L spreads, H reassociates right: /L **H** H/ → [L **L H**] any moraic structure

Some nominals have unexpected morphotonological structures, as their stem tone varies. The surface tone of their stems varies between [LM] or [L] and the final rising element cannot be reconciled with a consistently underlying final H or M tone, respectively (Schwarz 2007: 56f.). Such stems providing an unstable lexical L(M) tone pattern are regarded as irregular.

³There are dialectal differences in what concerns the potential for L-spreading and phrasefinal L boundary tones. The data provided here represent tone in the central dialect region.

The tonological principles outlined above were also employed for the analysis of inflectional verb tone to which we turn now.

3 Basic inflectional tone in simple predicates

Word order in Buli across different tense, aspect, modality, and polarity (TAMP) contexts is S-Aux-V-O-(Aux), with predominantly preverbal auxiliaries. Main clauses formed by a subject⁴ and a simple predicate with or without complements are referred to as simple main clauses (SMCs). Pronominal verb objects are typically bound and, in some contexts, pronominal subjects as well. Negation is always morphologically marked to the left of the predicate. In addition, a clausefinal glottal stop is regularly discernable, regardless of the specific primary negation marker (Schwarz 1999). This is considered a prosodic marking. A morphological marker that appears in some negative contexts at the verb in clausefinal position is analyzed as an assertion marker and may also be present in affirmation, albeit tonally distinct. To the right of the verb, some particles (*ká* and *kámā*) are extremely common (Schwarz 2007: 247ff.: 247ff., 2010). Since they do not alter the inflectional input tone of verbs, they are not considered here. Stative verbs incompatible with a perfective reading are excluded from the discussion for reasons of space. Verb forms typically have one to three syllables. Temporal information can be indicated by tense markers in second position, but very often it is just based on aspectual information. The citation form of dynamic verbs is a nominalized form that denotes the action. It has a M input tone and a nominal suffix *-ka* to which the grammatical verb tone spreads. In (3)⁵, such a verbal noun functions as the argument of another verb.

- (3) ð=piìlin jūkā. /piìlim jūka/
 3SG.1=start drink:12VN
 ‘He started drinking.’

(Heiss 585 PA)

Grammatical tone is associated with the initial syllable of the verb. Where applicable, tone spreads within the verb (cf. *piìlim* in (3)) and onto toneless morphemes. Verbfinally bound morphemes are in most contexts toneless and receive their tone through the verb. When attached to a verb with H input, they receive either a H clone or a L boundary tone (4). L-spreading operates in addition in (5).

⁴In direct imperatives an overt subject (2nd person singular) is omitted.

⁵Less common conventions and abbreviations used in this paper are: ASS – assertive marker; D – disjunctive; NUMCL – numeral classifier; PNEG – prosodic negation; PV – prosodic vowel; Q – question marker; RECPR – reciprocal; T – tense; trloc – translocation; VN – verbal noun. Numbers at (pro)nominals correspond to the numbering system of noun classes in Miehe et al. (2012)

- (4) mí já=wà. / mí já=wá síúkú pō. /já=wa/
 1SG.D see=3SG.1 1SG.D see=3SG.1 path:DEF15 in
 'I saw him. / I saw him on the road.' (wel 326 wiag)
- (5) wà=mì pùnjyà?. /n púnj-ya/
 3SG.1=NEG swim:ASS.PNEG
 'He didn't swim.' (tam 3 swim 001b)

Remarkably, toneless suffixes do not copy the L tone of a verb (6). Suffix *-ya* surfaces as M rather than L. One solution for this unexpected surface tone is to assume that after L verbs, the elsewhere toneless pronominal objects and suffix *-ya* contribute or resort to M as their own input tone. Unfortunately, this entails that not the surface tone, but the input tone of objects and suffix *-ya* varies depending on the stem it attaches to. For the time being I maintain this analysis.

- (6) nûrú-bóárí à chènjyā. /chènji-yā/
 person1-many.5 PV go:ASS
 'Many people went.' (tam 5 057)

Readers may have noticed a preverbal vowel *à* in (6) that is not glossed as an auxiliary. This vowel appears at the left edge of verbs that are not aspectually marked, coinciding with a prosodic break. The prosodic vowel (PV) also targets some auxiliaries and connectives.⁶ It is not required and does not contribute to the aspectual (or temporal) inflection of the verb. In the imperfective indicative (7), on the other hand, an identical particle virtually functions as an auxiliary and is glossed as such. That the *à* is required here is an indication for an obligatory phrasal boundary between lexical subject and verb in the imperfective indicative. Accordingly, it is the verb tone and not the auxiliary *à* that allows aspectual disambiguation. Pronominal subjects in the imperfective indicative (8) are provided by portmanteau pronouns in which pronoun and auxiliary have fused.

- (7) wà=chôrōwá à nàgì=wā, ká kù=nōā
 3SG.1=husband:DEF1 IPFV hit=3SG.1 KA 3SG.15=NUMCL.6
yègà. /à nág-i-wa/
 many
 'Her husband beats her very often.' (swa 145)
- (8) māà dīg ká lām. /-à dīg/
 1SG.IPFV cook KA meat.22 (AUX fused in portmanteau pronoun)
 'I am cooking meat.' (Heiss 432 PA)

⁶When present at auxiliaries and connectives, it is conventionally written as one word.

Based on the examination of SMCs, predictable inflectional tone patterns of dynamic verbs emerge (Table 1). The input tone of the verb is marked bold, to its left are obligatory inflectional markers with their input tones. Bound morphemes are preceded by a hyphen and presented with their surface tone. A slash separates the tonal variants caused by L boundary tones that replace H clones clausefinally.

	Subjunctive		Subjunctive IPFV	
			– bound obj	+ bound obj
AFF	Ø M-[M]		á M-[M]	á H-[H/L]
NEG	kán L-[M] ?		ká-á M-[M] ?	ká-á H-[H/L] ?

	Indicative		Future	Indicative IPFV	
	+ SAP	– SAP		– bound obj	+ bound obj
AFF	Ø H-[H/L]	Ø L-[M]	<i>lè M-[M]</i>	(-)à M-[M]	(-)à H-[H/L]
NEG	ñ H-[H/L] ?		cf. Ind. IPFV	<i>kàn M-[M]</i> ?	<i>kàn H-[H/L]</i> ?

Table 1: Inflectional tone for dynamic verbs in SMCs (verb tone in bold)

As Table 1 shows, M is the dominant tone in subjunctive and future. If we consider M as the default tone of dynamic verbs, then there are three conditions under which the tone changes: (i) In the aspectually unmarked indicative, with locuphoric subject pronouns (1st and 2nd person pronouns, Haspelmath 2021: 127) the verb is H, with 3rd person subjects it is L. (ii) In the imperfective, the presence of bound object pronouns correlates with a H verb. In the absence of the pronouns, the verb remains M. (iii) Some preverbal auxiliaries affect tone: After the negative marker *kán* in subjunctive, the verb is L, and after the nasal negation marker in the indicative, the verb is underlyingly H.

In natural discourse only a small fraction of the utterances has the shape of SMCs. We turn now to more complex constructions.

4 Inflectional tone in complex constructions

In the following subsections, I describe four recurrent constructional types analyzing whether, where and how the inflectional tone parallels or changes in comparison with SMCs.

4.1 Subjunctive complement clauses

Complement clauses in the subjunctive are applied for various functions, e.g., intentional future with auxiliary verb *za* ‘get/stand up’ in the matrix clause. The subjunctive complement clause always follows its matrix clause and may start with a complementizer as in (9). In the construction in (10), on the other hand,

the verb *yaa(li)* in the matrix clause has been reduced to a mere tonal trace at the subject pronoun. Lacking a complementizer, the surface looks like the sequence of two coreferent pronouns. To speakers the underlying construction is transparent, though.

- (9) kám báṣì [tè fi=bíaká sítí bùōŋjá]?
 NEG leave CNJ 2SG=dog:DEF.12 provoke goat:DEF.6.PNEG
 ‘Don’t let your dog make the goats running.’ (Heiss 483 PA)
- (10) tàā [tì=pē=ní ká jiām]
 1PL.want 1PL=do=2PL KA thanks
 ‘We want to thank you people’ (Anyidohu 021)

Whether coreferent or not, subjunctive complement clauses require a subject pronoun. Conjunction *tè* serves well when the subject of the matrix clause and the subjunctive clause are not coreferential. (11) illustrates a subjunctive complement clause with an imperfective verb. As in SMCs, the aspectual marking in the subjunctive clause fuses with the pronominal subject. The example illustrates that the H tone of the aspectual marker is sometimes completely lost, often, however, it is maintained as a final rise.

- (11) nì=báṣ [tè tàà pūŋ].
 2PL=leave CNJ 1PL:IPFV swim
 ‘Allow us to continue swimming’ (tam 3 swim 054a)

In view of the structural parallels between main and complement clause in the subjunctive, it can be concluded that the subjunctive SMC in Buli represents a case of insubordination, “the conventionalized main clause use of what, on *prima facie* grounds, appear to be formally subordinate clauses” (Evans 2007: 367).

4.2 Serial verb constructions

Verb serialization, per definitionem monoclausal and asyndetic (Haspelmath 2016) serves a wide range of lexical and grammatical functions in Buli, expressing benefactive, path in motion and transfer predicates, progressive, and many more. In verb serialization in Buli, arguments may intervene between verbs that are sharing one or more arguments. The serialization of more than two verbs is not uncommon. In (12), a motion event is encoded by a subject-sharing verb series expressing manner and path. Note that if the subject pronoun is a locuphoric pronoun (e.g., *mí* or *nì* 1SG), only the first verb has a H tone whereas the other two verbs remain unchanged. Note also that suffix *-ya* does not appear at a clausefinal serialized verb in affirmation. The non-initial

verbs with a L tone represent thus distinctive dependent verb forms. Object pronouns surface as M (13), parallel to SMCs.

- (12) ð=yðg jìn tìmù zúk, à sìŋ.
3SG.1=jump come.out tree:DEF14 on PV descend
'He jumped (down) from the tree.' (wel 125 wiag)
- (13) nì=nāg nísá à tè=wā.
2PL=hit hand.6 PV give=3SG.1
'Clap hands for him.' (Anyidohu 025)

Future or negation auxiliaries always occur before the first verb in serialization. Unexpected is the tonal behavior in combination with the negative marker *n̄* (14). It is not just the initial verb but all verbs that display the surface tones of H verbs affected by L-spreading from the negative marker *n̄* (i.e., as if underlyingly /n̄ dárí-wa (*n̄*⁷) lásansi-ya/). The tone repetition by a dependent verb is probably connected to the morphological marking at the end of the verb series.

- (14) àáiyà?, břáká n̄ dárí=wá lòánsíyà?.
no.ASS.PNEG dog:DEF12 NEG pull=3SG.1 let.fall:ASS.PNEG
'No, the dog didn't pull him down.' (BL (4) 2005: 0036-1)

Most remarkable, however, is the fact that imperfective marking cannot occur at the initial verb. Hence, the aspectual subject pronouns encountered in SMCs do not appear with SVCs. Only non-initial verbs in a verb series can be marked for aspect (15). The structure is the same as in the subjunctive imperfective. While the auxiliary *á* can stand alone, it frequently binds to the preceding verb. In the process of fusion, the distinctive H tone of the auxiliary can get lost.

- (15) bà=kàlàà píesí ká dààtä.
3PL.2=sit.down.IPFV carve KA wood:21
'They are sitting and carving wood.' (BL (1b-sess) 2004: 067)

The fusion of initial verb and the imperfective auxiliary is common in the progressive construction (16). It is formed by a locative stative verb (*bō*) containing a locative adverbial (*díú*) in the process of erosion followed by the aspectually marked lexical verb.

- (16) mí bóráá kúrñ ká júé.
1SG.D be.LOC.there.IPFV pound KA yam.6
'I'm pounding yams.' (wel 223 wiag)

⁷This segment is not present before the non-initial verbs, however, the verb tone suggests that it is.

4.3 *tè*-clause constructions

The clausal conjunction *tè* (sometimes with prosodic vowel *à*) known from subjunctive complement clauses is also used in various nonmodal contexts, among them the narration of sequential events. The conjunction assists reference tracking as illustrated in (17) in which a rudimentary storyline based on a picture series (Skopeteas et al. 2006) is told. Apart from the introductory part and a short intermediate stretch, all clauses begin with *tè* and involve a change of subjects among easily retrievable referents.

- (17) [Today, two of my brothers were sent to buy tomatoes (lit. they sent...)]
- a. *tè bà mèèná chèŋ*
CNJ 3PL.2 all go
‘and they both went’
[but lost their way. They couldn’t get tomatoes.]
 - b. *àtè bà=yāā tòm mī,*
PV:CNJ 3PL.2=T send 1SG.D
‘And then I was sent (lit. they sent me),’
 - c.⁸ *tè mí gá bāgī à jà dà tām,*
CNJ 1SG.D TRLOC be.able PV see buy have.come
‘and I managed to get and bring (the tomatoes),’
 - d. *tè bà=pà dìg ɳàndìntà.*
CNJ 3PL.2=take cook food:21
‘and they prepared something to eat with them.’

(BL (1b-sess) 2004: 394.01)

The dynamic verbs in indicative *tè*-clauses distinguish structurally from those in subjunctive *tè*-clauses in affirmation, since their tone is not M. They are L, bound object pronouns are M, and suffix *-ya* does not occur, an inflectional pattern that corresponds to that of dependent dynamic verbs in SVCs.

Imperfective marking in *tè*-clauses is possible, as well, among others in sentence constructions in which a non-subject constituent is fronted (18). The fronted constituent is followed by a *tè*-clause. It may also be accompanied by copula *ká*. The imperfective verb displays the familiar dependent structure encountered in subjunctive SMCs and non-initial serialized verbs.

- (18) *ligrā dīnà, àtè fāā yāālī?*
money.6 3SG.5:which PV:CNJ 2SG.IPFV want.Q
‘How much money do you want?’

(Mel Fr 092)

⁸This example contains two stative verbs with M tone that are not further discussed here.

Postnominal, head-external relative clauses are another common context in which *tè*-clauses occur.

4.4 *le*-clause constructions

The auxiliary of this construction (connective *lē*, allomorph *nē*; compatible with prosodic vowel *à*) precedes the verb. Note that the auxiliary differs only by tone from the future auxiliary and a prepositional comitative marker. The *le*-clause construction can form a main clause on its own, but is discussed here because of its marked structure and use.

As an SMC, the *le*-clause construction occurs in discourse-pragmatic contexts where the referent of the subject constituent is at issue. In Schwarz (2016) I have tried to reconcile these pragmatically determined contexts under the concept of thetic statements (Fiedler et al. 2010 with data from other languages). (19) illustrates the *le*-clause construction. The sentence responds to a question (What happened?) with the proposition conveyed by a picture. A canonical SMC without the auxiliary *lē* would be inappropriate here.

- (19) lóórá, àlē nàgì chāāb.
 car:6 PV:CON hit RECP
 ‘There was a car crash. (lit. Cars crashed into each other.)’
 (BL (1b-sess) 2004: 021)

(20) provides an illustration for a verb marked for imperfective in a *le*-clause construction. As in SMCs, the aspectual auxiliary binds to the left, but here it is H. It always fuses with the connective *le*, displaying a rising tone (LH or LM) before non-H tones. In the fused form the distinctive M tone of the simple auxiliary that distinguishes it from the future auxiliary and prepositional comitative marker is lost.

- (20) ká nùìnsà nàá yír, dāā júmà?
 KA bird:13 CON.IPFV fly NEG fish:6.PNEG
 ‘It is birds that fly, not fishes.’ (sent 139)

le-clause constructions occur in various contexts and are easily integrated in larger sentence constructions. Relativization with a *le*-clause (21), as a case in point, differs from relativization with a *tè*-clause by its head-internal structure (Schwarz 2007: 75ff., Hiraiwa 2003). A relative clause with auxiliary *lē* does not modify a nominal head represented in the matrix clause but functions as a constituent in the matrix clause. Note that the syntactic construction does not necessarily require a clausefinal determiner *lá*.

- (21) bá kàn jē [wà=náá jē dīí lá]?.
 3PL.2.D NEG do 3SG.1=CON.IPFV do 3SG.INDEF DET.PNEG
 'They don't do what he is doing.' (Karichiwade 006)

Crucially, *le*-clauses can, but they do not need to follow an external head, in contrast to *tè*-clauses. They are commonly found at the beginning of complex sentences, for instance as sentence-initial adverbial clauses or recapitulative clauses in tail-head linkage constructions. The inflectional structures in the imperfective are straightforward and familiar (see (20), (21)). The verb tone is determined by the availability of pronominal objects. In aspectually unmarked *le*-clauses, however, a new inflectional pattern appears (22). If the verb is not in clausefinal position (i.e., followed by a complement or by determiner *lá*), it displays the familiar L of aspectually unmarked dependent verbs (cf. (19)), object pronouns are M. In clausefinal position, however, the verb bears a rising LM tone and ends with a palatal vowel that seems to represent a truncated form of suffix *-ya*, while the full syllabic suffix *-ya* is not allowed.

- (22) nípōōwá būkú lē ñòbī.
 woman:DEF1 goat:LDEF15 CON eat.(ASS)
 'The woman's goat has eaten (the beans)' (BL (2) 2005: 0473-1)

5 Final remarks

This overview shows how tone contributes to the inflection of verbs, considering a range of simple and more complex constructions in affirmation and negation. The results are briefly summarized here.

The imperfective construction is tonally controlled by the availability of bound pronominal objects and has only two basic forms. The aspectually unmarked paradigm, in contrast, comprises of distinctive inflectional verb forms for (i) indicative with subject controlled tone, (ii) subjunctive, (iii) dependent verbs and (iv) dependent verbs in the *le*-clause. The only difference between the two imperfective constructions is the tone of the auxiliary, the dependent H variant *á* used everywhere except in indicative SMCs. For the L imperfective auxiliary in SMCs (*à*), a prosodic background has been suggested, the presence of an obligatory phrase boundary in this construction that separates the verb from a lexical subject constituent and has contributed to the development of portmanteau subject pronouns.

The dependent verb forms also show that inflectional tone conveys syntactic information. The fact that dependent verb forms occur with negation marker *ká(n)* in SMCs supports the hypothesis (Schwarz 1999: 96) that the respective negative markers are of verbal origin (see stative verb *kā* 'not exist, not have'). More interesting, however, is the nature and history of the affirmative

auxiliaries. I hypothesize that all instances of auxiliary *lē* – i.e., auxiliary *lè* in the epistemically probable future as well as the auxiliary variants in *le*-clauses: *lē* and fused *lāá ~ lāā ~ lāà* – are etymologically related to the prepositional comitative marker *lè*. An interesting verb *le* (see Kröger 1992: 212, entry *lie*³) with compatible semantics is synchronically attested in questions where it occurs without interrogative complements (X *lee?* ‘Where is X?’). This topic cannot be pursued here, but it seems fair to say that, not unlike some Bantu languages, inflectional tone in Buli does its best to function “as the glue holding a grammar together” (Hyman 2016: 35).

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Non-illusory linear effect in Closest Conjunct Agreement

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1 Two types of Closest Conjunct Agreement

Agreement with conjoined subjects often results in a value that reflects the sum of the two conjuncts. For example, in (1), the verb *are* shows plural despite both of the conjuncts being singular. In other words, the singular features on the conjuncts are resolved into a plural feature.¹

- (1) [DP John_[SG] and Mary_[SG]] are_[PL] tall.

Resolved agreement in (1) is not the only option across languages. In the Welsh example in (2), the verb *gwelais* ‘saw’ shows the feature value of the first conjunct rather than the plural feature of the whole conjunction phrase. Since the agreement controller *ti* ‘you.sg’ is linearly the closest conjunct to the agreement target *gwelais*, this pattern is labeled as Closest Conjunct Agreement (hereinforth CCA). The agreeing controller and target are in bold throughout the paper.

- (2) **Gwelais** [**ti** a Megan] ein hunain.
see.PST.2SG you.SG and Megan 2PL SELF
‘You and Megan saw yourselves.’ (Welsh; Borsley 2009)

CCA patterns appear in various constructions and in agreement of different features. The sentence in (3) is an example from object agreement in Hindi. The verb agrees with the closest, in this case, the second, conjunct in gender rather than a resolved gender of the entire conjunction phrase. In (4), the Bavarian complementizer *dass* can either show 2PL agreement with the whole conjunction phrase or 2SG agreement with the first conjunct. See Nevins and Weisser (2019) for a recent overview of CCA patterns observed across languages.

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- (3) maiMN-ne [ek chaataa aur **ek saaRii**]
 I-ERG an umbrella.ABS.M.SG and a saree.ABS.F.SG
khariid-ii
 buy-PERF.F.SG
 ‘I bought an umbrella and a saree.’ (Hindi; Benmamoun et al. 2009)
- (4) ... dass-ds/-sd **du** und d’Maria an Hauptpreis
 ... that-2.PL/2.SG [you.2.SG and the Maria]_[2.PL] the first.prize
 gwunna hab-ds.
 won have-2.PL
 ‘...that Maria and you have won the first prize.’
 (Bavarian; van Koppen 2005: 25)

CCA patterns illustrated in (2)-(4) share the following properties: **i.** the agreeing DPs form a conjunction phrase (ConjP) mediated by a conjunct head (Conj); **ii.** the agreement target (verb/T) is external to the ConjP; **iii.** the competing agreement controllers are the ConjP and one of the conjoined DPs. This is shown explicitly in (4), where either the ConjP (2PL) or the first conjunct (2SG) controls the agreement on the complementizer. I will label CCA with these properties as *Type 1 CCA*. As we will see, the properties listed above are substantial in the accounts for Type 1 CCA in the literature. Most of the accounts that will be discussed in this paper assume that Type 1 CCA is triggered when the ConjP lacks certain features, thus allowing the agreement target to probe one conjunct inside the ConjP.

Studies on Type 1 CCA have been fruitful, partly because it is one of the rare cases where linear order seems to play a role in a grammatical operation: agreement. It has been observed since the beginning days of generative grammar that language structure is hierarchical and that linear order supposedly plays a very limited role in grammatical operations (mostly in morphology and phonology). With such a background, the existence of CCA is rather surprising if agreement is syntactic, since it is the linearly closest conjunct, rather than the other (sometimes hierarchically higher) conjunct that controls agreement.

The various proposals put forward for Type 1 CCA can be divided into two approaches. One approach acknowledges the role of linear order in agreement in addition to hierarchical relations, see Marušić (2007), Bhatt and Walkow (2013), Marušić et al. (2015). I will label this approach *the linear approach*. The other type of approach to CCA argues that the linear effect is but an illusion and proposes a grammar that only makes reference to hierarchical relations such as c-command, see van Koppen (2005), Bošković (2009), Murphy and Puškar (2018) among others. In other words, the linear effect is derived from hierarchical relations within this approach. I will label this approach as *the non-linear approach*. One could argue that if these two approaches cover the

same set of data, i.e. are empirically equivalent, the non-linear approach would be conceptually superior since the grammar would only make reference to one kind of relation instead of two (see Murphy and Puškar 2018: p1218).

Although the majority of literature focuses on Type 1 CCA, CCA is also observed in Right Node Raising constructions (RNR). For example, Grosz (2015) reports that in Czech, when the T head agrees with two subjects with mismatching features (1sg and 2sg) in two CP conjuncts, it shows agreement with the second subject (2sg), as shown in (5). This construction will be labeled as *TP RNR* for the rest of the paper.

- (5) Táňa je pyšná, že já, a Věra je ráda, že **ty**, [?]**budeš** cestovat
 Tanja is proud that I, and Vera is glad that **you**, **will.2sg** travel.inf
 do Nigérie.
 to Nigeria
 ‘Tanja is proud that I, and Vera is glad that you, will travel to Nigeria.’
 (Czech; Grosz 2015)

Another example of CCA in RNR comes from Hindi-Urdu. Bhatt and Walkow (2013) observe that when the verb is shared by two conjoined clauses, it shows agreement with the second and closest object as shown in (6) with F.SG.

- (6) Ramesh-ne ek baksaa aur Sitaa-ne **ek thailii** **uthaa-yii**
 Ramesh-ERG a box.M.SG and Sita-ERG a small.bag.F.SG lift-PERF.F
th-ii
 be.PST-F.SG
 ‘Ramesh had lifted a box and Sita had lifted a bag’ (Hindi-Urdu; Bhatt and Walkow 2013)

Lastly, Shen (2018) observes that in the nominal RNR construction in (7), the shared noun *student* agrees with the singular feature within the second conjunct DP. I will label CCA observed in RNR as *Type 2 CCA*.

- (7) Ten tall and **one** short **student** came from the U.S. (Shen 2018)

Type 2 CCA differs from Type 1 CCA in all three properties mentioned above: **i.** the DPs do not form a ConjP. The conjunction head mediates two larger constituents which do not participate in agreement themselves. For example, in (5), two matrix CPs are conjoined while agreement is between the embedded subjects and the embedded verb. In (6), two CPs are conjoined, while the agreement is between the objects and the shared verb. In (7), DPs are conjoined and the agreement is between the noun and the numerals. **ii.** The agreement target is internal to the ConjP, as opposed to Type 1 CCA. The shared auxiliary/verb in (5) and (6) and the shared noun in (7) are inside the ConjP. **iii.** Instead of the ConjP, the competing agreement controllers in Type 2 CCA are inside the conjuncts. For example, in (5) the embedded subjects *já* ‘I’ and *ty* ‘you’ both

agree with the shared auxiliary *budeš* 'will'. Neither the ConjP nor the conjunct CPs themselves participate in agreement.

Despite their differences specified above, the linear approach can capture both types of CCA. In particular, Bhatt and Walkow (2013) offer a unified account for Type 1 CCA in (3) and Type 2 CCA in (6) in Hindi-Urdu. How the non-linear approach fares with Type 2 CCA has not been addressed in the previous literature. In this paper, I will argue that analyses in the non-linear approach encounter difficulties in accounting for Type 2 CCA. In other words, the linear effect (at least in Type 2) CCA is not illusory. In Section 2, I will briefly illustrate how the linear approach accounts for Type 2 CCA. In Section 3, three accounts in the non-linear approach are discussed and I will show how they fall short in analyzing Type 2 CCA. Section ?? concludes.

2 Linear approach to CCA

2.1 Bhatt and Walkow (2013)

Bhatt and Walkow (2013) are the first to provide a unified account for both Type 1 CCA and Type 2 CCA. They discuss both agreement with conjoined objects and agreement with objects in RNR in Hindi-Urdu. In (8), the verb agrees with conjoined objects with mismatching gender features (masculine and feminine) and shows agreement with the second conjunct (masculine in (8-a) and feminine in (8-b)). In RNR constructions in (9), the verbs are shared by two conjoined constituents (vPs in (9-a) and TPs in (9-b)) and agree with the objects inside each conjunction. As seen, the shared verbs show agreement with the feminine object in the second conjunct.

- (8) a. Ram-ne ek thailii aur **ek baksaa** aaj
 Ram-ERG a bag.F and a box.M today
 uthaa-yaa/*-yii/??-ye.
 lift-PFV.M.SG/-PFV.F/-PFV.M.PL
 ‘Ram lifted a small bag and a box.’ (Bhatt and Walkow 2013: 8b)

- b. Ram-ne ek thailaa aur **ek petii** aaj
 Ram-ERG a bag.M and a box.F today
 uthaa-yii/*-yaa/-??ye.
 lift-PFV.F.SG/-PFV.M.SG/-PFV.M.PL
 ‘Ram lifted a bag and a box.’ (Bhatt and Walkow 2013: 9c)

- (9) a. Rina-ne [kal ek batuaa] aur [aaj **ek saarii**]
 Rina-ERG yesterday a purse.M.SG and today a sari.F
 khariid-ii thii.
 buy-PERF.F be-PST.F.SG
 ‘Rina had bought a purse yesterday and a sari today.’

- b. [Ramesh-ne ek baksaa] aur [Sita-ne **ek thailii**]
 Ramesh-ERG a box.M.SG and Sita-ERG a small.bag.F.SG
uthaa-yii thii / *uthaa-ye th-e,
 lift-PERF.F be-PST.F.SG / lift-PERF.M.PL be.PST.M.PL
 'Ramesh had lifted a box and Sita had lifted a bag'
 (Bhatt and Walkow 2013: 23)

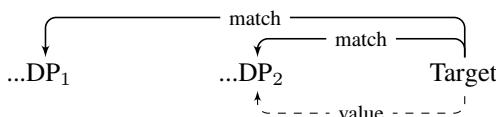
What is interesting in Hindi-Urdu is that there is a subject-object asymmetry regarding CCA in that only agreement with objects (both conjoined and in RNR) triggers CCA. Bhatt and Walkow (2013) account for the asymmetric CCA by proposing that Agreement involves two operations: MATCH which establishes the dependency between the agreement controller and target, and VALUE which copies the value from the controller to the target. They argue that although T MATCHES with the object ConjP for agreement (solid arrow in (10)), case on the object ConjP (assigned by v) makes its phi features inaccessible to VALUE T. As a repair, the operation VALUE is postponed to the PF after linearization. At this point, the feature on the linearly closest conjunct will be copied onto T, i.e. a CCA pattern (dashed arrow in (10)). This analysis accounts for Type 1 CCA in (8) with the help of linear order in determining the valuing agreement controller.

(10) Type 1 CCA in Bhatt and Walkow (2013)²



As Bhatt and Walkow (2013) note, the analysis extends to Type 2 CCA in RNR. The authors assume a multi-dominance structure for RNR where the shared verb MATCHES with both objects in the RNR remnants (solid arrows in (11)). Just as for conjoined objects, previously assigned cases make the objects inaccessible for VALUE. It is thus postponed to PF where the object in the linearly closest remnant VALUES the shared T head (dashed arrow in (11)). In sum, by utilizing linear order in agreement, Bhatt and Walkow (2013) provide a unified account for both Type 1 and Type 2 CCA.

(11) Type 2 CCA in Bhatt and Walkow (2013)



²In figures and trees in this paper, solid arrows indicate MATCH relation and dashed arrows indicate the VALUE operation. Since VALUE entails MATCH, when both relations are present between two elements, only dashed arrows are used in trees.

2.2 Marušič et al. (2015)

Marušič et al. (2015) focus on gender agreement with conjoined subjects in Slovenian and conducted written and spoken elicitation experiments (see also Marušič 2007, Willer Gold et al. 2018). They revealed that Slovenian allows three strategies when agreeing with conjoined plural subjects with mismatching gender features as shown in (12): **i.** default agreement, i.e. masculine plural (*odšli*); **ii.** CCA, i.e. first conjunct agreement with post-verbal subjects and last conjunct agreement with pre-verbal subjects (*odšla*); **iii.** highest conjunct agreement, i.e. first conjunct agreement with pre-verbal subjects (*odšle*).

- (12) [Krave in teleta] so odšli /odšla /odšle na pašo.
 cowF.PL and calfN.PL AUXPL wentM.PL /N.PL /F.PL on graze
 ‘Cows and calves went grazing.’ (Marušič et al. 2015: 20)

To capture these three options, Marušič et al. (2015) propose that the ConjP in Slovenian has number features, but lacks gender features. When the agreement target MATCHES with the ConjP, the lack of gender feature on ConjP will either trigger default agreement or postpone the VALUE operation to PF.³ In PF, when VALUE takes place after linearization, the linearly closest conjunct (the first conjunct in post-verbal subjects and the second conjunct in pre-verbal subjects) will be chosen. When VALUE takes place before linearization, the hierarchically closest conjunct (the first conjunct) will be chosen. Like the analysis in Bhatt and Walkow (2013), Marušič et al. (2015) also utilize VALUE in PF which is sensitive to linear order in accounting for Type 1 CCA.

Although not made explicit by Marušič et al. (2015), Type 2 CCA can be quite straight-forwardly accounted for by the operations proposed. Take TP RNR in Dutch, in (13), for example, where the embedded subjects mismatch in person and number features. The shared auxiliary shows agreement with the second subject, i.e. CCA.

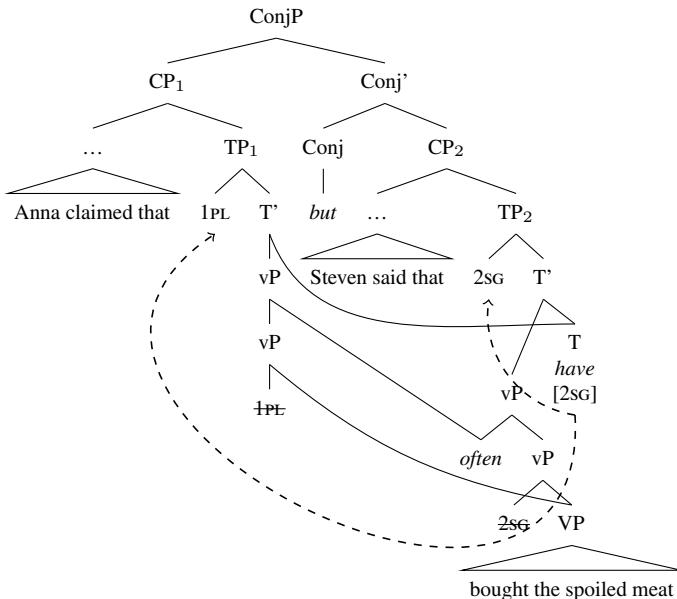
- (13) Anna beweerde dat wij, maar Steven zei dat **jij**, vaak bedorven
 Anna claimed that 1PL, but Steven said that 2SG, often spoiled
 vlees **hebt/*hebbent** gekocht.
 meat have.2SG/*.PL bought
 ‘Anna claimed that we, but Steven said that you, often bought spoiled
 meat.’
 (Dutch; modified from (3) and (19) in the appendix of Kluck 2009)

I illustrate the multi-dominance structure for (13) in (14). Details irrelevant for the current discussion are left out. I refer the readers to Gračanin-Yuksek (2007), Kluck (2009), Bhatt and Walkow (2013), Grosz (2015), Shen (2018) for

³Marušič et al. (2015) use AGREE-LINK for MATCH and AGREE-COPY for VALUE.

the arguments for the multi-dominance structure. As shown, two matrix clauses are conjoined. The T head (*have*) is merged once but, via multi-dominance, simultaneously linked to both embedded clauses. Then T MATCHES with both embedded subjects (1PL, 2SG). The mismatching features on T, resulting through agreement with two subjects, cannot be resolved, thus VALUE is postponed to PF. In PF, if VALUE takes place before linearization, the choice of the controller cannot be determined according to the hierarchical closeness, since neither embedded subject c-commands the other. On the other hand, if VALUE takes place after linearization, the second embedded subject is chosen in VALUE, due to its linear proximity to the target. As a result, the auxiliary in (13) shows CCA in the similar way as depicted in (11).⁴

(14) structure of (13)



As shown in this section, the two analyses in the linear approach to CCA are able to provide a unified account for Type 1 and Type 2 CCA. The difference between the analyses proposed by Bhatt and Walkow (2013) and Marušič et al. (2015) lies in the trigger of the postponed valuation. In Hindi-Urdu, it is the inaccessibility of the feature of ConjP due to its case; whereas in Slovenian, it is the lack of gender feature on ConjP. I argue that in Type 2 CCA, as in (13),

⁴Conjoined subjects with mismatching features do not trigger CCA in (i), unlike (13). This is expected since in (i) the Conj head resolves the mismatching features on each subject to plural and T agrees with the resolved plural on the conjunction phrase.

(i) John and I are/*am coming to the party.

it is the mismatching feature values of the controllers. Despite the different triggers, the operation that made CCA possible, i.e. postponed VALUE as a repair strategy, is the common factor across the analyses discussed there. In sum, the unification of Type 1 and Type 2 CCA in this approach is ultimately made possible by recognizing the role linear order plays in determining the agreement controller.⁵

3 Non-linear approach to CCA

Apart from the linear approach to CCA, various analyses have been proposed for Type 1 CCA that do not make reference to linear order. Under such a non-linear approach, the linear effect in CCA is an illusion that can be exclusively derived with hierarchical relations. As mentioned above, if the non-linear approach is empirically equivalent to the linear approach to CCA, the former would be conceptually superior as it is purely syntactic (Murphy and Puškar 2018). I will evaluate three analyses within the non-linear approach and show that all three have difficulty in accounting for Type 2 CCA, unlike the linear approach.

3.1 Van Koppen (2005)

van Koppen (2005) surveys complementizer agreement with conjoined subjects in Germanic dialects. She observes that the complementizer can show agreement with the first conjunct of the conjoined subjects in certain dialects e.g. Tegelen Dutch, Waubach Dutch, and Bavarian. In Bavarian, in (15), for example, the complementizer can either show full agreement with the ConjP (2PL) or agreement with the first conjunct (2SG).

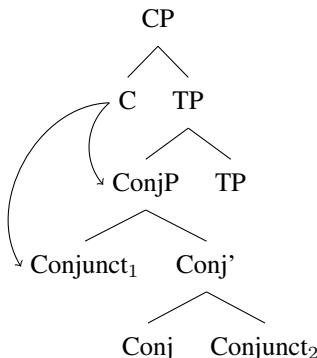
⁵Note that the conclusion relies on the multi-dominance analysis for TP RNR. If TP RNR involves ellipsis of the first embedded TP, the CCA pattern would be accounted for with no preference to linear order. Here I present an argument against the ellipsis analysis for TP RNR from Larson (2012). See Gračanin-Yuksek (2007), Kluck (2009), Bhattacharyya and Walkow (2013), Grosz (2015), Shen (2018) for more arguments for multi-dominance and against the ellipsis analysis. If an ellipsis analysis for TP RNR were tenable, the intended reading of (i) should be available since morphological mismatches are allowed under ellipsis in general. The absence of the intended reading indicates TP RNR does not involve ellipsis.

- (i) #Alice is happy that **Iris** can spell **her** name, and Claire is proud that **Daniel**, can spell **his** name.
Intended reading: Alice is happy that Iris can spell Iris' name, and Claire is proud that Daniel can spell Daniel's name.

- (15) ... **dass-ds/dass-sd** du und d'Maria an Hauptpreis
... that-2.PL/that-2.SG [you.SG and the Maria]_[2.PL] the first.prize
gwunna hab-ds.
won have-2.PL
‘...that Maria and you have won the first prize’ (van Koppen 2005:
(25), Bavarian)

van Koppen (2005) proposes that the CCA observed in (15) is actually **highest** conjunct agreement. The structure of complementizer agreement in (15) is illustrated in (16). It is assumed that the first conjunct in Spec,ConjP, and the ConjP itself are equally local to the agreement target, i.e. the C head. van Koppen (2005) argues that C agrees simultaneously with the first conjunct and the ConjP and spells out the feature with the most specific agreement morphology. In Bavarian, agreement morphology for 2SG and 2PL on the C head is equally specific⁶, thus C optionally shows full agreement with ConjP and CCA with the first conjunct, as shown in (16).

- (16) C [_{ConjP} Conjunct₁ [and Conjunct₂]]



The analysis above has two components: **i.** the equidistance component, which makes the highest conjunct and the ConjP equally accessible to the agreement target; **ii.** the morphological specificity that determines which agreement form the target will end up having. Under this analysis, CCA results from choosing the more specific morphological form between two equally accessible agreement controllers. Unlike the linear approach discussed in the previous section, linear order plays no role in this analysis. The illusion of the linear effect stems from the fact that in structures like (16), the highest conjunct happens to be the

⁶Other feature specifications on C are not overtly marked in Bavarian, see (26) in van Koppen 2005.

linearly closest to the agreement target C.⁷

To evaluate whether this analysis can be extended to Type 2 CCA, one needs to compare the structures in (14) and (16). We can see that in TP RNR (14), neither the highest conjunct CP at Spec,ConjP position nor the ConjP itself are relevant for agreement on the embedded T, unlike (16). The structural relation between the highest conjunct CP and the ConjP in TP RNR is thus irrelevant. However, the agreement controllers, i.e. the embedded subjects, are equally local to the shared T in the multi-dominance structure, in other words, the equidistance component of van Koppen (2005)'s analysis is applicable in the structure in (14). Given that the embedded subjects are equally local to the agreement target, the morphological specificity component makes two predictions: **i.** the agreement target will show the more specific morphological form; **ii.** the choice of the agreeing subject would not be affected by linear order of the two.

Since both [2SG] and [PL] are overtly marked on the verb (as *hebt* and *hebben*), we would expect both forms to be available regardless of linear order of the subjects, similar to complementizer agreement in Bavarian (15). This prediction is not borne out. The pair of sentences in (17) are minimally different in the order of the subjects. In both sentences, the auxiliary shows agreement with the closest subject and never agrees with the first subject that is linearly further away.⁸

- (17) a. Anna beweerde dat wij, maar Steven zei dat **jij**, vaak
 Anna claimed that 1PL, but Steven said that 2SG, often
 bedorven vlees **hebt**/***hebben** gekocht.
 spoiled meat have.2SG/*.PL bought
 ‘Anna claimed that we, but Steven said that you, often bought
 spoiled meat.’
- b. Anna beweerde dat **jij**, maar Steven zei dat **wij**, vaak
 Anna claimed that 2SG, but Steven said that 1PL, often
 bedorven vlees **hebben**/***hebt** gekocht.
 spoiled meat have.PL/*.2SG bought
 ‘Anna claimed that you, but Steven said that we, often bought
 spoiled meat.’

This linear effect is observed in other cases of Type 2 CCA. As shown in Hindi-

⁷This paper focuses on Type 2 CCA and does not discuss the validity of analyses in the context of Type 1 CCA. See Bhatt and Walkow (2013) for an argument against van Koppen (2005)'s analysis of Type 1 CCA.

⁸In addition to experiment results on similar sentences in Kluck (2009), judgments of (17) are based on a forced choice survey conducted with five Dutch speakers. Four out of five speakers chose CCA.

Urdu in (18) and nominal RNR construction in English in (19), changing the linear order of the agreement controllers (objects in (18) and numerals in (19)) while keeping the hierarchical structure identical triggers change in agreement. In sum, the analysis proposed in van Koppen (2005) cannot account for Type 2 CCA.

- (18) a. Ramesh-ne ek thailii aur Sitaa-ne **ek baksaa**
 Ramesh-ERG a small.bag.F.SG and Sita-ERG a box.M.SG
 uthaa-yaa/*-yii.
 lift-PVF.M.SG/PVF.F
 'Ramesh lifted a bag and Sita lifted a box.'
 - b. Ramesh-ne ek baksaa aur Sitaa-ne **ek thailii**
 Ramesh-ERG a box.M.SG and Sita-ERG a small.bag.F.SG
 uthaa-yii/*-yaa.
 lift-PVF.F/PVF.M.SG
 'Ramesh lifted a box and Sita lifted a bag.'
- (19) a. Two tall and one short student/*students came from the U.S.
 b. One tall and two short students/*student came from the U.S.

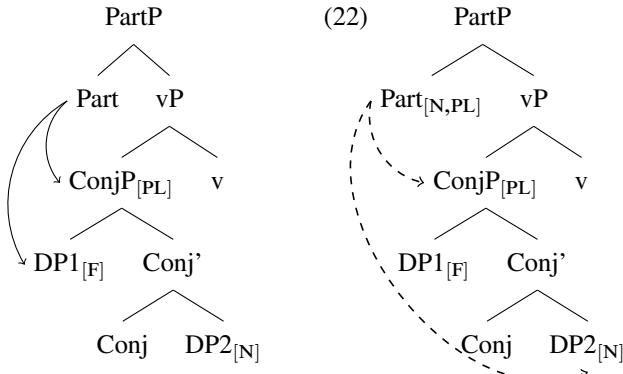
3.2 Bošković (2009)

Bošković (2009) focuses on Type 1 CCA in gender agreement in Bosnian-Croatian-Serbian (BCS). As shown in (20), the participle shows agreement with the second conjunct.

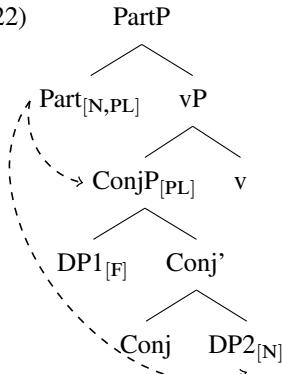
- (20) Sva sela i **sve varošice** su **uništene/*uništena.**
 all villages.PL.N and all towns.PL.F are destroyed.PL.F/PL.N
 'All villages and towns were destroyed.' (BCS, Bošković 2009: 5)

The proposed account is purely syntactic. Following Marušić (2007), Bošković (2009) assumes that the ConjP does not have gender features and the agreement target PART matches with ConjP for number and DP1 (the highest conjunct) for gender, shown in (21). The EPP feature on Part requires one agreement controller to be moved to the Spec,PartP position. In BCS, both DP1 and ConjP can, in principle, move. This ambiguity prevents movement of either DP1 or ConjP and undoes the MATCH operation. In the second attempt, Part matches with the ConjP for number and the DP2 for gender, shown in (22). Since the second conjunct cannot move in BCS, the only movable controller, the ConjP, is moved. The result sentence shows resolved number agreement and closest gender agreement, shown in (23). This analysis makes no reference to linear order in accounting for CCA. In other words, the relevance of linear proximity in CCA is an illusion.

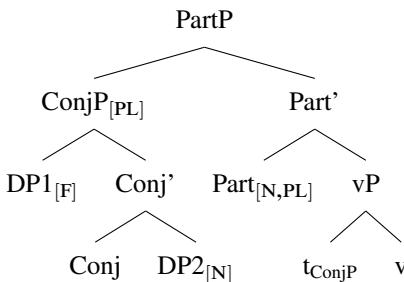
(21)



(22)



(23)



This analysis proposed for Type 1 CCA in BCS cannot be extended to Type 2 CCA due to the distinct structural properties of the constructions involved.⁹ CCA in Bošković (2009)'s analysis relies on the disqualification of the first conjunction for agreement due to the movement ambiguity. This ambiguity is triggered by the fact that the two DPs form a ConJP and that the first (but not the second) conjunct can move out of the ConJP in BCS.

In Type 2 CCA, using TP RNR in (14) as an example, two embedded subjects do not form a ConJP and are equally local to the agreement target T. Moreover, the two embedded subjects do not differ in their mobility. Instead, the shared embedded T simultaneously matches with the first and the second embedded subject, both of which then move to their respective Spec,TP positions. In other words, agreement with the first embedded subject is not blocked in TP RNR. With both embedded subjects qualified for agreement, it is not clear how Bošković (2009)'s analysis would generate the CCA pattern in constructions like TP RNR.

⁹Bhatt and Walkow (2013) pointed out that Bošković's (2009) account does not extend to Type 2 CCA. Here we illustrate why that is the case.

3.3 Murphy and Puškar (2018)

Murphy and Puškar (2018) share the idea that the linear effect in CCA is an illusion, but propose a very different analysis for CCA in BCS than the one in Bošković (2009). They argue that the agreement patterns observed in BCS result from different orders of operations including MERGE of the conjuncts, upward agree ($\uparrow\text{AGR}\uparrow$), and downward agree ($\downarrow\text{AGR}\downarrow$). The agreement process takes place in two cycles: inside the ConjP, the Conj head agrees with the conjuncts and projects its value onto the ConjP; external to the ConjP, the participle agrees with the ConjP. They assume that **i.** the order of the operations with each cycle is in principle free, **ii.** that the order of $\uparrow\text{AGR}\uparrow$ and $\downarrow\text{AGR}\downarrow$ is constant inside and outside the ConjP in one derivation, and **iii.** that EPP movement of the agreement controller to the Spec,PartP position is only driven by the need to $\uparrow\text{AGR}\uparrow$. The authors argue that this analysis generates all the attested patterns in BCS and rules out the unattested pattern, i.e. second conjunct agreement with the post-verbal subject. Different orders and the generated agreement patterns are summarized in Table 1.

order	outcome
$\text{MERGE} \gg \uparrow\text{AGR}\uparrow \gg \downarrow\text{AGR}\downarrow$	resolved agreement with the pre-verbal subject
$\text{MERGE} \gg \downarrow\text{AGR}\downarrow \gg \uparrow\text{AGR}\uparrow$	resolved agreement with the post-verbal subject
$\uparrow\text{AGR}\uparrow \gg \text{MERGE} \gg \downarrow\text{AGR}\downarrow$	second conjunct agreement with the pre-verbal subject (CCA)
$\downarrow\text{AGR}\downarrow \gg \text{MERGE} \gg \uparrow\text{AGR}\uparrow$	first conjunct agreement with the post-verbal subject (CCA)
$\uparrow\text{AGR}\uparrow \gg \downarrow\text{AGR}\downarrow \gg \text{MERGE}$	first conjunct agreement with the pre-verbal subject (HCA)
$\downarrow\text{AGR}\downarrow \gg \uparrow\text{AGR}\uparrow \gg \text{MERGE}$	first conjunct agreement with the post-verbal subject (CCA)

Table 1: orders and outcomes in Murphy and Puškar (2018)

The readers are referred to Murphy and Puškar (2018) for the detailed derivations of all the possibilities. In this paper, I use the second conjunct agreement with the preverbal subject in (24) as an example for CCA in their system, where the participle *prodata* ‘sold’ shows neuter agreement with the second conjunct *sva odela* ‘all suits’.

- (24) [Sve haljine i **sva odela**] su juče **prodata**.
 all dress.F.PL and all suit.N.PL are yesterday sell.PRT.N.PL
 'All dresses and all suits were sold yesterday.'
 (BCS; Murphy and Puškar 2018)

According to Murphy and Puškar (2018), the agreement pattern in (24) is generated with the order $\uparrow\text{AGR}\uparrow \gg \text{MERGE} \gg \downarrow\text{AGR}\downarrow$. First, the Conj head agrees upward and does not find a DP, since MERGE of the conjuncts has not occurred yet, shown in (25). After that, both conjuncts MERGE with the Conj head. The Conj head then agrees down to get the feature from the second/lower conjunct, shown in (26). The resulting ConjP projects the feature of the second conjunct i.e. N.PL. External to the ConjP, since the order of $\uparrow\text{AGR}\uparrow$ and $\downarrow\text{AGR}\downarrow$ is constant inside and outside the ConjP, the PART head agrees upward first and triggers the movement of the ConjP to the Spec,PartP position, as shown in (27). After the movement, PART gets the N.PL feature from the ConjP. The result sentence (24) is one where the participle shows agreement with the second conjunct while the ConjP is in the preverbal position. On the surface, it is a CCA pattern; however, linear order plays no role in deriving the pattern.

- (25) $\uparrow\text{AGR}\uparrow$ (ConjP internal)
-
- (26) $\text{MERGE} + \downarrow\text{AGR}\downarrow$ (ConjP internal)
-
- (27) $\uparrow\text{AGR}\uparrow$ (ConjP external)
-

Although Murphy and Puškar (2018) can capture Type 1 CCA as illustrated above, it is unclear how their system would derive Type 2 CCA. The option of CCA in Murphy and Puškar (2018) comes from the fact that the two DPs form a ConjP. In (24), it is the order inside the ConjP ($\uparrow\text{AGR}\uparrow \gg \text{MERGE} \gg \downarrow\text{AGR}\downarrow$) that projects the N.PL feature of the second conjunct onto the ConjP,

which the Part head eventually agrees with. As discussed above, agreement controllers in Type 2 CCA constructions do not form the ConjP. Taking the multi-dominance structure of TP RNR in (14) as an example, since the Conj head does not participate in agreement, the order of operations between the ConjP and the conjuncts is not relevant for the derivation of CCA. The only agreement relation is between the T head and the embedded subjects. The fact that the embedded subjects precede the vP adjunct ‘often’ in (13) indicates that the embedded subjects have undergone EPP movement to Spec,TP positions. Since this movement is assumed to be triggered by $\uparrow\text{AGR}\uparrow$ in Murphy and Puškar (2018), $\uparrow\text{AGR}\uparrow$ must precede $\downarrow\text{AGR}\downarrow$ in (14). Thus the mechanism proposed in Murphy and Puškar (2018) wrongly predicts that T agrees with both embedded subjects, rather than just the second subject.

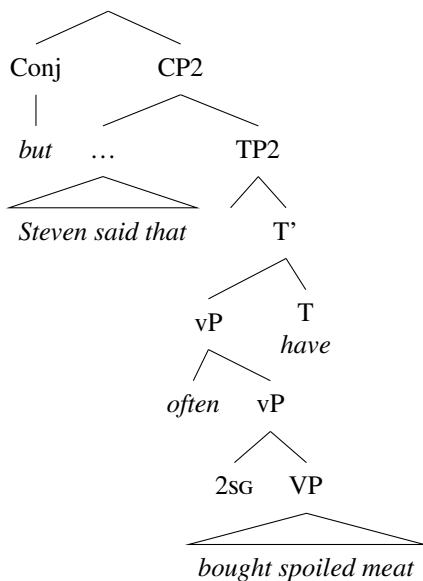
Although the original analysis does not apply to Type 2 CCA, one can extend the idea of flexible ordering to more operations relevant to the construction at hand. For example, it can be conceived that the MERGE operation is further divided into merge of the first conjunct, MERGE_{C1} , and merge of the second conjunct, MERGE_{C2} . In (14), this would separate merging of CP1 and CP2. One can further assume that the two operations of MERGE and upward and downward agreement are sequentially ordered. There are 24 logically possible orders of these four operations. Six out of the 24 derivations can generate a CCA pattern, as listed in (28).

- (28) $\text{MERGE}_{C2} \gg \uparrow\text{AGR}\uparrow \gg \text{MERGE}_{C1} \gg \downarrow\text{AGR}\downarrow$
- $\text{MERGE}_{C2} \gg \uparrow\text{AGR}\uparrow \gg \downarrow\text{AGR}\downarrow \gg \text{MERGE}_{C1}$
- $\text{MERGE}_{C2} \gg \downarrow\text{AGR}\downarrow \gg \text{MERGE}_{C1} \gg \uparrow\text{AGR}\uparrow$
- $\text{MERGE}_{C2} \gg \downarrow\text{AGR}\downarrow \gg \uparrow\text{AGR}\uparrow \gg \text{MERGE}_{C1}$
- $\uparrow\text{AGR}\uparrow \gg \text{MERGE}_{C2} \gg \downarrow\text{AGR}\downarrow \gg \text{MERGE}_{C1}$
- $\downarrow\text{AGR}\downarrow \gg \text{MERGE}_{C2} \gg \uparrow\text{AGR}\uparrow \gg \text{MERGE}_{C1}$

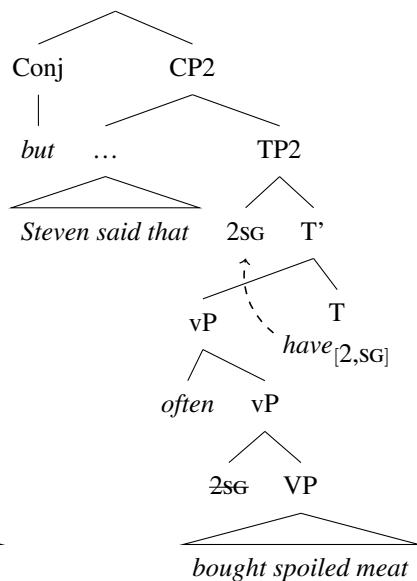
In the rest of this section, I will illustrate one derivation in detail and argue that this extension to the ordering analysis causes more problems than it solves. Take TP RNR in Dutch in (29) as an example. Assuming the later agreement does not override the previous value, the order of $\text{MERGE}_{C2} \gg \uparrow\text{AGR}\uparrow \gg \text{MERGE}_{C1} \gg \downarrow\text{AGR}\downarrow$ can generate a CCA pattern.

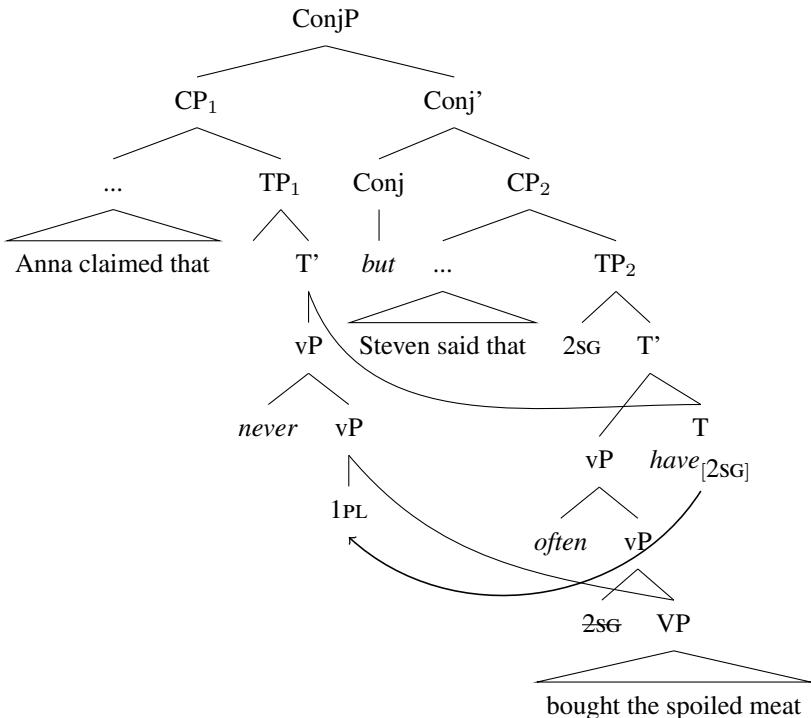
- (29) Anna beweerde dat wij nooit, maar Steven zei dat jij vaak,
Anna claimed that 1PL never, but Steven said that 2SG often,
bedorven vlees hebt/*hebben gekocht.
spoiled meat have.2SG/.PL bought
'Anna claimed that we never, but Steven said that you often, bought
spoiled meat.'

The derivation starts with the the Conj head *but*. In (30), materials in CP2 are merged. In (31), T agrees upward, triggering the embedded subject to move to the Spec,TP position, and gets the [2SG] value. In (32), CP1 is merged. What is special about the multi-dominance structure is that several elements in CP1 merge with the existing structure in CP2. For example, the embedded subject in CP1 (1PL) merges with VP which is already merged in a previous derivational step. Lastly in (32), $\downarrow \text{AGR} \downarrow$ occurs and T agrees with 1PL in its Spec,vP position. The value on T remains that of the second embedded subject, 2SG, showing an apparent CCA pattern.

(30) MERGE_{C2}

(31) ↑AGR↑



(32) MERGE_{C1} ≫ ↓AGR↓

Despite the CCA pattern, the derivation outlined above suffers from several issues. First, the sentence generated in (30)-(32) involves a wrong word order of the embedded subject in CP1 and the vP adjunct ‘never.’ As illustrated in (32), T agrees with the embedded subject in the CP1 via downward agreement, which does not trigger subject movement to Spec,TP. As a result, the subject in situ would follow the vP adjunct ‘never’ at the edge of the vP. The generated sentence shown in (33) is not acceptable and the sentence in (29) cannot be generated in this derivation. It is important to note that this problem is not unique to the particular order illustrated above. None of the possible orders in (28) can generate (29) with the CCA pattern and the correct order between vP adjuncts and subjects.¹⁰

¹⁰A further set of 24 orders of the four operations can be constructed if we assume that a later agreement operation can override the valuation from an earlier agreement operation. Out of these 24 orders, six can generate the CCA pattern in TP RNR. None of these six orders can generate the right word order of (29) either.

- (33) *Anna beweerde dat nooit wij, maar Steven zei dat jij vaak,
 Anna claimed that never 1PL, but Steven said that 2SG often,
 bedorven vlees hebt gekocht.
 spoiled meat have.2.SG bought
 ‘Anna claimed that never we, but Steven siad that you often, bought
 spoiled meat.’

Second, if the order $\text{MERGE}_{C2} \gg \uparrow\text{AGR}\uparrow \gg \text{MERGE}_{C1} \gg \downarrow\text{AGR}\downarrow$ is available in deriving the TP RNR construction, this order should also be available in agreement with conjoined subjects as in (34). As shown, when two singular DPs are conjoined, the verb must be plural, i.e. resolved agreement, and not singular. Interestingly, none of the six orders that can derive CCA in TP RNR in (28) can derive the acceptable sentence in (34). For example, the order discussed above in (30)-(32), $\text{MERGE}_{C2} \gg \uparrow\text{AGR}\uparrow \gg \text{MERGE}_{C1} \gg \downarrow\text{AGR}\downarrow$, makes a prediction that the Conj head will not get any value, contrary to the fact.

- (34) Anna en Roos kochten/*kocht een huis.
 Anna and Roos bought.PL/.SG a house
 ‘Anna and Roos bought a house.’ (Dutch; Kluck 2009: (2))

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Asymmetries in isiZulu possessor raising constructions

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1 Introduction

Like many other (Bantu and non-Bantu) languages, isiZulu (Nguni; S.42) has a type of double-object construction in which the first object (DP_1) is interpreted as standing in a possessor relation to the second object (DP_2) (Sabelo 1990):¹

- (1) i-n-doda i-phul-e u-m-fana i-n-galo
AUG-9-man 9.SM-break-PST AUG-1-boy AUG-9-arm
‘The man broke the boy’s arm.’
(lit.: ‘The man broke the boy the arm.’)
- (2) u-m-zingeli u-vul-e i-n-ja u-m-lomo
AUG-1-hunter 1.SM-open-PST AUG-9-dog AUG-3-mouth
‘The hunter opened the dog’s mouth.’
(lit.: ‘The hunter opened the dog the mouth.’)
- (3) u-pholish-e i-moto a-ma-sondo
1.SM-polish-PST AUG-9.car AUG-6-tire
‘He polished the car’s tires.’
(lit.: ‘He polished the car the tires.’)

Sentences such as (1)–(3) are referred to as “unmarked possessives” (Sabelo 1990), “external possession” (Payne and Barshi 1999), or “possessor raising” constructions (Landau 1999, Deal 2013), because the DP with the possessor theta role is not morphologically marked as a possessor (e.g. by a genitive/associative prefix), and not realised inside the possesum-DP (DP_2), but externally, as an additional object (DP_1).

¹I thank Mthuli Buthelezi for providing the isiZulu-examples; all errors are mine. Glosses follow the Leipzig glossing rules. Additional abbreviations: ASP = aspect; AUG = augment (a determiner-like vowel prefixed to isiZulu nouns); DJ = disjoint; FV = final vowel; OM = object marker; SM = subject marker. Numbers indicate noun classes.

In prototypical possessor raising constructions (henceforth PRCs) in isiZulu and other Bantu languages, the possessum denotes a (body) part of the possessor (Hyman 1977, Van de Velde 2020), a relation that is often (but inaccurately – see (3)) described as “inalienable possession”. Another characteristic of PRCs in Bantu is that the verb can take an additional object-DP despite the absence of valence-increasing morphology (Simango 2007). The verbs in (1)–(3) subcategorise only for the possessum-DP and appear without applicative or causative suffixes, but the PRCs are nevertheless realised as double-object constructions.

In this short article, I address the fact that isiZulu is asymmetrical with respect to the properties of the two objects in PRCs, even though the language is otherwise symmetrical in double-object constructions.

2 Object asymmetries

Keach and Rochemont (1994: 83–84) show that in Kiswahili PRCs, the possessor object can be object-marked and passivised, but the possessum-DP cannot (see also Henderson 2014 for closely related Chimwiini):

- (4) a. Juma a-li-m-kata Asha kidole
 1.Juma 1.SM-PST-1.OM-cut 1.Asha 7.finger
 ‘Juma cut Asha’s finger.’
- b. *Juma a-li-(ki)-kata Asha kidole
 1.Juma 1.SM-PST-7.OM-cut 1.Asha 7.finger
- (5) a. Asha a-li-kat-wa kidole na Juma
 1.Asha 1.SM-PST-cut-PASS 7.finger by 1.Juma
 ‘Asha’s finger was cut by Juma.’
- b. *kidole ki-li-kat-wa Asha na Juma
 7.finger 7.SM-PST-cut-PASS 1.Asha by 1.Juma

The asymmetry illustrated in (4) and (5) is expected, because Kiswahili is generally an asymmetrical language (Marten et al. 2007, Mursell 2018). Only DP₁, but not DP₂, of a double-object construction can be object-marked and passivised (Marten et al. 2007: 326–327):

- (6) a. Juma a-li-m-pik-i-a Asha chakula cha
 1.Juma 1.SM-PST-1.OM-cook-APPL-FV 1.Asha 7.food of
 asubuhi
 morning
 ‘Juma is cooking breakfast for Asha.’

- b. *Juma a-li-ki-pik-i-a Asha chakula cha
 1.Juma 1.SM-PST-7.OM-cook-APPL-FV 1.Asha 7.food of
 asubuhi
 morning
- (7) a. Asha a-li-pik-il-iw-a chakula cha asubuhi na
 1.Asha 1.SM-PST-cook-APPL-PASS-FV 7.food of morning by
 Juma
 1.Juma
 ‘Asha was cooked breakfast for by Juma.’
- b. *chakula cha asubuhi ki-li-pik-il-iw-a Asha na
 7.food of morning 7.SM-PST-cook-APPL-PASS-FV 1.Asha by
 Juma
 1.Juma

In contrast to Kiswahili, isiZulu is symmetrical. Both objects (DP₁ and DP₂) of a ditransitive verb can be object-marked and passivised (Adams 2010, Zeller 2012):

- (8) u-John u-nik-a a-ba-ntwana i-mali
 AUG-1a.John 1.SM-give-FV AUG-2-child AUG-9.money
 ‘John is giving the children money.’
- (9) a. u-John u-ba-nik-a i-mali a-ba-ntwana
 AUG-1a.John 1.SM-2.OM-give-FV AUG-9.money AUG-2-child
 ‘John is giving the children money.’
- b. u-John u-yi-nik-a a-ba-ntwana i-mali
 AUG-1a.John 1.SM-9.OM-give-PST AUG-2-child AUG-9.money
 ‘John is giving the children money.’
- (10) a. a-ba-ntwana ba-nik-w-a i-mali
 AUG-2-child 2.SM-give-PASS-FV AUG-9.money
 ‘The children are given money.’
- b. i-mali i-nik-w-a a-ba-ntwana
 AUG-9.money 9.SM-give-PASS-FV AUG-2-child
 ‘The money is given to the children.’

Nevertheless, isiZulu is asymmetrical in PRCs (Bosch 1985, Zeller 2012). As in Kiswahili, object marking and passivisation are only possible with DP₁ (the possessor), but not with DP₂ (the possessum):

- (11) a. i-n-doda i-m-phul-e i-n-galo u-m-fana
 AUG-9-man 9.SM-1.OM-break-PST AUG-9-arm AUG-1-boy
 ‘The man broke the boy’s arm.’

- b. *i-n-doda i-yi-phul-e u-m-fana i-n-galo
AUG-9-man 9.SM-9.OM-break-PST AUG-1-boy AUG-9-arm
- (12) a. u-m-fana u-phul-w-e i-n-galo y-i-n-doda
AUG-1-boy 1.SM-break-PASS-PST AUG-9-arm by-AUG-9-man
'The boy's arm was broken by the man.'
- b. *i-n-galo i-phul-w-e u-m-fana y-i-n-doda
AUG-9-arm 9.SM-break-PASS-PST AUG-1-boy by-AUG-9-man
- (13) a. u-yi-pholish-e a-ma-sondo i-moto
1.SM-9.OM-polish-PST AUG-6-tire AUG-9.car
'He polished the car's tires.'
- b. *u-wa-pholish-e i-moto a-ma-sondo
1.SM-6.OM-polish-PST AUG-9.car AUG-6-tire
- (14) a. i-moto i-pholish-w-e a-ma-sondo
AUG-9.car 9.SM-polish-PASS-PST AUG-6-tire
'The car's tires were polished.'
- b. *a-ma-sondo a-pholish-w-e i-moto
AUG-6-tire 6.SM-polish-PASS-PST AUG-9.car

The same contrast between PRCs and ordinary double-object constructions has been observed for the symmetrical Bantu languages Haya and Sesotho, which are also asymmetrical in PRCs (Hyman 1977, Hyman and Duranti 1982). This raises the question of whether the inability to object-mark or passivise the possessum-DP could be a universal property of PRCs, which is independent of the properties of other double-object constructions in a language. However, the Bantu language Kinyarwanda contradicts this hypothesis. Kinyarwanda is a symmetrical language like *isiZulu*, Haya and Sesotho, and allows object marking and passivisation of both DP₁ (the Recipient) and DP₂ (the Theme) of a ditransitive verb such as *ha*, 'give' in (15). Object marking and passivisation of DP₂ are illustrated by (16) and (17) (Kimenyi 1980: 127, Jean Paul Ngoboka p.c.):

- (15) umu-gabo y-a-haa-ye umu-góre igi-tabo
1-man 1.SM-PST-give-ASP 1-woman 7-book
'The man gave the woman the book.'
- (16) umu-gabo y-a-ki-haa-ye umu-góre
1-man 1.SM-7.OM-PST-give-ASP 1-woman
'The man gave it to the woman.'
- (17) igi-tabo cy-a-haa-w-e umu-goré n'umu-gabo
7-book 7.SM-PST-give-PASS-ASP 1-woman by-1-man
'The book was given to the woman by the man.'

Importantly, PRCs in Kinyarwanda behave in the same way. The possessum (DP₂) can be object-marked and passivised, as shown in (19) and (20) (Kimenyi 1980: 103–104, Van de Velde 2020):

- (18) umu-góre y-a-shokoj-e umu-gabo umu-satsi
 1-woman 1.SM-PST-comb-ASP 1-man 3-hair
 ‘The woman combed the man’s hair.’
- (19) umu-góre y-a-wu-shokoj-e umu-gabo
 1-woman 1.SM-PST-3.OM-comb-ASP 1-man
 lit.: ‘The woman combed it the man.’
- (20) umu-satsi w-a-shokoj-w-e umu-gabo n’-ûmu-góre
 3-hair 3.SM-PST-comb-PASS-ASP 1-man by-1-woman
 ‘The man’s hair was combed by the woman.’

(19) and (20) show that there is no general constraint against the possessum-DP in PRCs adopting “primary” object properties. This conclusion gains further support from PRCs in German, in which the possessor is realised with dative case, while the possessum bears accusative:

- (21) [Der Mann]_{NOM} brach [dem Jungen]_{DAT} [den Arm]_{ACC}.
 the man broke the boy the arm
 ‘The man broke the boy’s arm.’

In German, only objects with accusative case can be passivised. Consequently, German allows only the possessum, and not the possessor, of a PRC to become the subject of a passive:

- (22) [Der Arm]_{NOM} wurde [dem Jungen]_{DAT} gebrochen.
 the arm was the boy broken
 ‘The boy’s arm was broken.’
- (23) *[Der Junge]_{NOM} wurde [den Arm]_{ACC} gebrochen.
 the boy was the arm broken

The examples from Kinyarwanda and German suggest that, whether or not a possessum-DP can adopt “primary” object properties depends on the behaviour of other double-object constructions in the language. This however leaves the isiZulu situation as a puzzle.

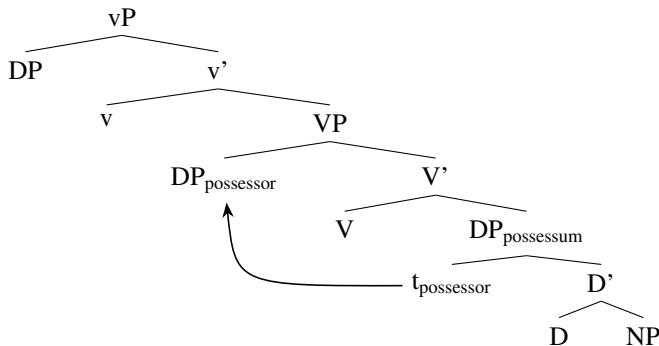
3 Possessor movement

A first step towards a solution is to ask in which way the syntax of PRCs differs from the syntax of other double-object constructions. If any structural differ-

ences can be identified, then perhaps the reason for the asymmetrical properties of isiZulu PRCs can be found there.

According to one prominent generative analysis, the syntax of PRCs is indeed different from the syntax of other double-object constructions. In this analysis, the possessor-DP is not base-generated in a possessum-external position, but originates inside the possessum-DP, where it receives the possessor theta role. From this position, it moves to the object position preceding the possessum. (24) illustrates the possessor movement analysis proposed in Landau (1999: 10), see also Deal (2013), Keach and Rochemont (1994), Lee-Schoenfeld (2006), a.o. for similar analyses:

(24)



According to (24), the syntax underlying PRCs differs from that of ordinary double-object constructions in that DP₁ (the possessor) is the head of a movement chain, and DP₂ (the possessum) includes the trace/copy of the moved possessor. In the next section, I discuss two possible explanations of the unexpected asymmetrical behaviour of isiZulu PRCs which exploit these differences.

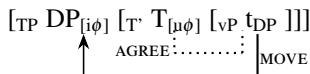
4 Explaining the asymmetry: Two accounts

4.1 The Generalized Proper Binding Condition

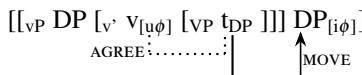
In isiZulu, object-marked and passivised DPs move out of the VP. In the passive, a VP-internal DP agrees with T and moves to the preverbal subject position ([Spec, T]). Object marking can be analysed as agreement between a DP and v; it is correlated with obligatory (right or left) dislocation of the object (Adams 2010, Zeller 2012, 2015a):²

²Evidence for the obligatory dislocation of object-marked DPs in isiZulu is provided by the fact that in double-object constructions, the canonical word order DP₁ > DP₂ changes to DP₂ > DP₁ if DP₁ is object-marked; compare e.g. (8) and (9-a) above. See Adams (2010) and Zeller

- (25) a. Passivisation:



- b. Object marking and right dislocation:



It follows that passivisation and object marking of the possessum in PRCs involve movement of the possessum-DP₂ out of the VP. But if the analysis in (24) is adopted for PRCs, then this moved DP₂ includes the trace/copy of the raised possessor-DP₁. Importantly, after movement of the possessum-DP₂ to a VP-external position, this trace/copy would no longer be c-commanded by its antecedent (the possessor-DP₁). As a result, object marking and passivisation of the possessum-DP₂ would be ruled out as violations of the *Generalized Proper Binding Condition* GPBC (Lasnik and Saito 1992), which states that traces must be bound at every stage of the derivation. In contrast, since DP₂ in non-possessor double-object constructions does not include a trace of DP₁, the GPBC has no bearing on object marking and passivisation in these constructions.

A potential problem for an analysis that rules out the ungrammatical isiZulu examples in (11-b)–(14-b) on the basis of the GPBC is raised by the grammaticality of the corresponding Kinyarwanda and German examples in (19), (20), and (22). Since PRCs in these languages are arguably also derived via possessor movement, it is unclear why the GPBC would not apply in these examples. However, note that the GPBC is systematically violated in German by remnant movement constructions such as (26), which has the syntax in (27) (see Grewendorf 2003, Müller 1998 for discussion):

- (26) Zu füttern hat den Hund keiner versucht.

to feed has the dog no.one tried

‘No one tried to feed the dog.’

- (27) [CP-1 [CP-2 t_{DP} zu füttern] hat [DP den Hund] keiner versucht t_{CP-2}]

In (26), the embedded object-DP *den Hund* has moved out of the embedded infinitive and scrambled in front of the matrix subject, while the infinitival CP, which includes the trace/copy of the scrambled object, has moved to [Spec, C] of the matrix clause. In light of the grammaticality of examples such as (26), one could conclude that the GPBC simply does not apply in German, which would also explain why (22) is grammatical. However, it then still remains

(2012) for additional evidence.

unclear why the GPBC does not rule out object marking and passivisation in Kinyarwanda PRCs.

4.2 “Mobility” features

An alternative analysis of the puzzling isiZulu asymmetries in PRCs is based on a proposal made in Bošković (2007). Bošković suggests that movement is not driven by attraction, but by an uninterpretable feature of the moving XP. Let me call this feature a “mobility feature” [MF]. In Zeller (2015a), I adopt Bošković’s proposal to account for the well-known correlation between agreement and DP-movement in isiZulu. I argue that a VP-internal DP with [MF] will be repelled from its base position and undergo movement to a VP-external position. Furthermore, I suggest that [MF] also activates a DP for agreement in isiZulu: [$u\phi$]-features of a functional head can only see the [$i\phi$]-features of a DP when this DP also has [MF]. A DP without [MF] will not only remain inside VP, but will also be invisible for a probing head.

This proposal explains why DP_2 in ordinary double-object constructions in isiZulu can be object-marked and passivised without violating Locality, despite the presence of a higher DP_1 which c-commands DP_2 . In sentences such as (9-b) and (10-b), where the Theme (DP_2) agrees with either v or T, the Recipient (DP_1) has remained inside the VP. This means that it does not have [MF], and is therefore not activated for agreement. The Theme, in contrast, bears [MF]; its [$i\phi$]-features are visible, and because the Recipient is not activated, Locality is not violated when the Theme agrees with v or T. Therefore, the Theme can be passivised or object-marked. Furthermore, because of [MF], the Theme will also move to a VP-external position (as shown in (25)).

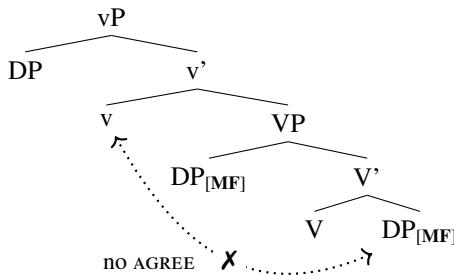
Evidence for this proposal is provided by isiZulu double-object constructions in which both DP_1 and DP_2 have [MF] and move out of the VP via dislocation. In this scenario, both DPs are activated for agreement. Consequently, Locality effects arise (Zeller 2015a,b):

- (28) a. ngi-ya-m-theng-el-a u-Sipho u-bisi
 1SG-DJ-1.OM-buy-APPL-FV AUG-1a.Sipho AUG-11.milk
 ‘I am buying milk for Sipho.’
- b. *ngi-ya-lu-theng-el-a u-Sipho u-bisi
 1SG-DJ-11.OM-buy-APPL-FV AUG-1a.Sipho AUG-11.milk

Note that the verbs in (28) are in the so-called disjoint form, which signals that the verb is final in the VP. This means that both objects in (28) are dislocated, which in turn implies that both DPs have [MF]. As a result, object agreement with the Theme-DP is ruled out in (28-b), because the [MF] of the higher Beneficiary-DP means that its [$i\phi$]-features are visible to the probing

v-head and block agreement between v and the lower Theme-DP:

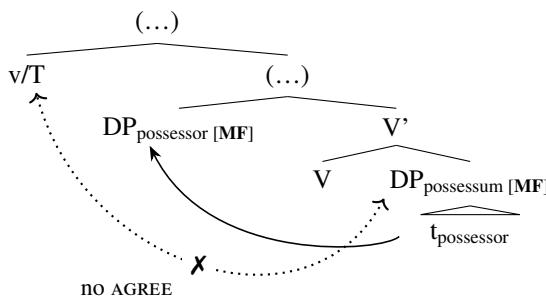
(29)



Passivisation and object marking of a lower DP₂ are hence impossible in isiZulu whenever [MF] is associated with a higher DP₁ that c-commands DP₂.

This analysis can now be extended to explain why object marking and passivisation of the possessum-DP₂ are never possible in PRCs. Recall that according to the possessor movement analysis in (24), the possessor-DP₁ in PRCs c-commands the possessum after moving out of the possessum-DP₂. Assuming that possessor movement is also triggered by [MF], and that [MF] on the possessor is not deleted after the DP has moved, it follows that in PRCs, the possessum-DP₂ is always c-commanded by a possessor-DP₁ with [MF]. Therefore, a higher Probe will never be able to find the possessum-DP₂ in a PRC in isiZulu, because the [iϕ]-features of the possessor-DP₁ are always visible to the Probe, and the possessor will always be the closest Goal:

(30)



An analysis of PRCs in terms of movement, in combination with the idea that the feature that triggers movement of a DP also activates it for agreement, explains why isiZulu is symmetrical in double-object constructions, but asymmetrical in PRCs.

The cross-linguistic differences discussed in Section 2 can be explained if we

assume that Bantu languages differ with respect to the conditions which make the [i ϕ]-features of DPs visible to higher Probes. In one group of Bantu languages, which includes isiZulu as well as other symmetrical languages which are asymmetrical in PRCs (e.g. Sesotho and Haya), the ϕ -features of DPs need to be activated by [MF]. In another group of languages, which includes Swahili and Kinyarwanda, even DPs without [MF] are active and can act as Goals for agreement. In these languages, the syntactic properties of objects in PRCs then mirror those of objects in other double-object constructions.

5 Conclusions

The ban on object marking and passivisation in isiZulu PRCs can possibly be explained on the basis of a movement account, which assumes that the possessor-DP originates inside the possessum-DP and moves to a DP-external position. Future research needs to establish which one of the two possible implementations of this account that I discussed in this article can be substantiated through a more comprehensive analysis, or if an entirely different story needs to be told.

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Part 2:

Information structure

Topic and focus asymmetries in Yorùbá

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1 Introduction

Topic and focus are two information structural notions that share a lot of similarities as well as differences, cross-linguistically. Although both are A'-dependencies, cross-linguistic studies have shown that languages use different strategies to realize them. The goal of this paper is to (a) describe the asymmetries between topic and focus constructions in Yorùbá, and (b) propose an analysis that accounts for both the asymmetries and the realization of both in the language.

While focus has received a reasonable amount of attention in the language, as far as I know, there is no study or analysis on the Yorùbá topic construction which uses the recent theoretical tools.¹ Earlier studies on focus construction in the language can be classified into two groups, based on their data description and proposed analysis. The first group assumes that focus construction in Yorùbá follows from what is commonly observed in West African languages, where the focus constituent is fronted to the left periphery followed by the dedicated focus marker *ni* which heads the Focus Phrase (FocP). This analysis assumes a mono-clausal structure for focus in the language (see a.o, Awóbùlúyì 1987, 2008, Ilori 2010, Aremu 2021) (1-a). The other group argues for what seems to be a biclausal cleft-like structure where the focus marker *ni* is assumed to be a copula (cf. Bisang and Sonaiya 2000, Adesola 2005). For example, Adesola (2005) assumes that the focus constituent itself does not move to the left periphery, it is base-generated there. Instead, it is a null operator that moves to Spec,CP. The CP is then dominated by a PredP which is headed by the focus marker (1-b). In this paper, I will adopt the former approach to focus construction in Yorùbá, i.e. (1-a). This is because it is more popular, and fits well with the analysis in this paper.

¹See Ilori (2010) Section 4.4.1.2 for a brief description of (aboutness) topic construction in Yorùbá. See also Awóyalé (1995).

- (1) a. [FocP XP_i [Foc' [Foc **ni**] [TP... t_i]]]
 b. [PredP XP_i [Pred' [Pred **ni**][CP Op_i [C' [C Ø][TP... t_i]]]]]

The remaining part of the paper is structured with the following sections. Section 2 introduces the description of how topic and focus are realized in the language. In Section 3, I apply some movement tests to show that while topics are base-generated in the left periphery, focus involves A'-movement to the left periphery. Toward the end of the section, I claim that subject focus on the other hand does not involve movement but base-generation. In Section 4, I propose a syntactic analysis based on the criterial approach to movement. I argue that the presence of both the topic and the focus constituents in the left periphery is as a result of the necessity to meet distinct criteria in that position, and at the same time they get their discourse interpretation. This also helps us account for the presence or absence of resumptive pronouns when a constituent is fronted. Finally, Section 5 provides a summary and concludes the paper.

2 Topic and focus construction

I will begin with a description of topic construction in the language, and afterwards I will discuss focus construction.

2.1 Topic

Yorùbá realizes both Aboutness Topic (henceforth AT) and Contrastive Topic (henceforth CT) distinctly. The difference between CT and AT is that while the former presupposes the presence of at least one alternative, the latter does not (Büring 2016).² Beginning with AT, in Yorùbá, the subject aboutness topic is realized at the left periphery of the clause, followed by a resumptive pronoun (henceforth RP) in the canonical subject position (2-b).

- (2) a. So fún mi nípa Adé.
 tell give 1SG.ACC about Adé
 ‘Tell me (something) about Adé.’
 b. **Adé**, ó pa eku náà.
 Adé 3SG kill rat DEF
 ‘Adé, he killed the rat.’

Object AT are also realized at the left-periphery, leaving an RP in their canonical complement of VP position (3). However, these RPs usually as-

²Some studies have argued that both contrastive topic and contrastive focus are the same partly because both trigger the presence of a set of alternatives (cf. Titov 2013). However, this claim seems too strong because unlike contrastive focus, the alternatives in contrastive topic are not excluded or used for exhaustification

similate to the final vowel of the preceding verb. Compare (3-a) with (3-b) below.³

- (3) a. **Aṣo**, Adé rà á.
cloth Adé buy 3SG
'Cloth, Adé bought it.'
- b. **Aṣo**, Adé fò ó.
cloth Adé wash 3SG
'Cloth, Adé washed it.'

Contrastive topics, on the other hand, usually begin with *ní ti* ('EXPL for') followed by the topic constituent.⁴ CTs are also resumed in there canonical position. If we take the question in (4-a) as a context for example, the sentence (4-b) has a contrastive topic in addition to the focus answer that the question requires. *Bóla* is a contrastive topic because it is contrasted with the other set of children that was mentioned already in the background (4-a). So, this could mean that the speaker does not know what the other children ate, but he knows that as for *Bóla*, she ate rice. It could also be that each child ate a different food. Thus, the conversation could continue with ... but as for Délé, he ate beans, and so on.

- (4) a. Kí ni àwọn ọmọ náà je?
what FOC PL child DEF eat
'What did the children eat?'
- b. Ní ti **Bóla**, ó je ìrèṣì.
EXPL for Bóla 3SG eat rice
'As for Bóla, she ate rice.'

Just like object AT, object CT are also realized in the clause-initial position. Similarly, the RP assimilates to the final vowel of the preceding verb as in (5-a).

- (5) a. Ní ti èwà náà, Délé je é.
EXPL for beans DEF Délé eat 3SG
'As for the beans, Délé ate it.'

Looking at the property of topic construction in Yorùbá, we can say that it behaves like the Hanging Topic Left Dislocation (HTLD) phenomenon that has been proposed in the literature (cf. Rizzi 1997, 2013, Anagnostopoulou

³See Adesola (2005) for *agreeing* and *non-agreeing* resumptive pronouns in Yorùbá

⁴Yorùbá is unlike some other West African languages like Gungbe (Aboh 2004) and Likpakaanl where topics are morphologically marked. In other words, these languages have a dedicated topic marker, just like focus. In fact, Likpakaanl has distinct topic markers for both AT and CT (see Acheampong and Aremu 2023).

1997, Cinque 1977, Gregory and Michaelis 2001, Frey 2004).⁵

2.2 Focus

Building on a body of focus literature (see a.o., Owólabí 1987, Bisang and Sonaiya 2000, Adesola 2005, Ilori 2010), focus construction in Yorùbá can be realized both in an in-situ or ex-situ position.⁶ Subject focus, however, are always realized in an ex-situ position. The example in (6-b) shows subject focus which is followed by the focus marker *ni*, and is resumed in its last A-position.⁷

- (6) a. Ta **ni** ó pa eku náà?
 who FOC 3SG kill rat DEF
 ‘Who killed the rat?’
 b. [Adé]_F **ni** ó pa eku náà.
 A. FOC 3SG kill.PFV rat DEF
 ‘ADÉ killed the rat.’

Non-subject focus (like object, adjunct and predicate focus), on the other hand, can both be in-situ and ex-situ, and they do not require a resumption. Beginning with object focus, when a patient argument is focused as in (7), it can remain in its base or theta position (7-b), or it can be fronted to the clause-initial position (7-c). In the case of the in-situ focus, the focus marker is absent. Thus, the context of the utterance would have to be resorted to, in order to know what is in focus; in this case, the *wh*-question.

- (7) a. Kí **ni** Adé pa?
 what FOC Adé kill
 ‘What did Adé kill?’
 b. Adé pa [eku]_F (***ni**).
 A. kill.PFV rat FOC
 ‘Adé killed A RAT.’

⁵I want to thank Luigi Rizzi for a discussion on this part and for bringing my attention to this.

⁶I will use boldface for the focus marker **ni**, and represent the focus constituent with [XP]_F.

The focus constituent will be in UPPER CASE in the English translation. Although both the *wh*-question and the focus answer behave the same way in Yorùbá, my analysis would be based on the latter. I will only use the former as a mechanism to realize the focus.

⁷Non-local subject focus behaves the same way. I will not discuss this because of space.

- (i) [Adé]_F **ni** Tolú mò wípé ó pa eku náà.
 A. FOC T. know COMP 3SG kill.PFV rat DEF
 ‘Tolú knew that ADÉ killed the rat.’

- c. [Eku]_F **ni** Adé pa (*a).
 rat FOC A. kill.PFV 3SG
 ‘Adé killed A RAT.’

Similarly, an adverbial focus can be in-situ (8-b) or ex-situ (8-c).

- (8) a. Ìgbàwo **ni** Adé pa eku?
 when FOC Adé kill rat
 ‘When did Adé killed a rat?’
 b. Adé pa eku **ní** [àná]_F.
 Adé kill.PFV rat LOC yesterday
 ‘Adé killed a rat YESTERDAY.’
 c. [Àná]_F **ni** Adé pa eku __.
 yesterday FOC Adé kill.PFV rat
 ‘Adé killed a rat YESTERDAY.’

Verb or verb phrase focus can as well be realized both in an in-situ and an ex-situ positions. If we consider the *wh*-questions in (9-a) and (10-a), both require a verb focus and VP focus respectively. Examples (9-b) and (10-b) are in-situ V(P)focus answers to these questions, while (9-c) and (10-c) are ex-situ answers. As shown in the data, ex-situ V(P) focus involve nominalization. In both cases, the ex-situ verbal copy is nominalized.⁸

- (9) a. Kí **ni** Adé se si ewúré náà?
 what FOC Adé do to goat DEF
 ‘What did Adé do to the goat?’
 b. Adé [na]_F ewúré náà.
 Adé beat goat DEF
 ‘Adé BEAT the goat.’
 c. [Ní-nà]_F **ni** Adé na ewúré náà.
 NMLZ-beat FOC Adé beat goat DEF
 ‘It was BEATING that Adé beat the goat.’

- (10) a. Kí **ni** Adé se?
 what FOC Adé do
 ‘What did Adé do?’
 b. Adé [ra àga]_F.
 Adé buy chair
 ‘Adé BOUGHT A CHAIR.’
 c. [Rí-ra àga]_F **ni** Adé ra àga.
 NMLZ-buy chair FOC Adé buy chair
 ‘It was BUYING A CHAIR that Adé bought a chair.’

⁸This is a common strategy for V(P) focus in many West African languages (cf. Hein 2017, 2020, 2021, Aremu 2021).

Summarizing this section, I have briefly described the different realizations of topic and focus in Yorùbá. Although both A'-dependencies can be realized in an ex-situ position, focus can also remain in-situ. Since the common property between the two A'-dependencies is their ex-situ nature, I will only use this as the basis for comparison. In other words, the in-situ focus construction will not be of much importance to us here. In the next section, I will provide evidence to support my claim that while topics, generally, are base-generated in the left periphery, ex-situ focus undergo movement to the left periphery. In addition, I will show that not all ex-situ focus undergo such movement; subject focus does not. Just like topic, it is also base-generated in the left periphery of the clause.

3 Base-generation and movement

In order to decide whether either of the A'-dependencies undergoes A'-movement to their surface position, or are base-generated there, we would have to apply movement tests. I will use two diagnostics for movement: *reconstruction for Principle A* and *adjunct island*.⁹ The following are the predictions. In reconstruction, a displaced constituent behaves as though it is still occupying its base position. The prediction therefore is that if a constituent did not, at any point in time, occupy a given base position, it does not reflect the property of that position. This means that such constituent is base-generated in its surface position. However, if a constituent can be reconstructed, it is traditionally assumed to have undergone movement to its surface position. With regard to island, on the other hand, a sentence should be ungrammatical if an ex-situ constituent undergoes movement from an island. If, however, the ex-situ constituent does not originate from an island, then we expect the sentence to be grammatical.

3.1 Reconstruction test

Because of space, I will only present reconstruction effect for binding Principle A. In (11-a), the reflexive pronoun inside the complex DP object is c-commanded by its antecedent *Ayò*. If the object DP with the reflexive is topicalized as in (11-b), the structure is ungrammatical, based on the established

⁹There are some independent studies which argue against reconstruction as a diagnostic for movement. For example, Salzmann (2017) claims that reconstruction does not directly diagnose movement in relative clauses, and cannot be seen as a reliable movement test (see also Salzmann 2019, Wurmbrand 2018, Šimík and Demian 2020). A similar claim has been made for islands by Adger and Ramchand (2005). However, their analysis was only based on successive-cyclic movement, and so is the claim. Nevertheless, I will use the two tests since they are still popular diagnostic for movement in the field.

bound reading. This is regardless of the presence of the resumptive pronoun. Considering our prediction, this means that the topic is base-generated in the left periphery of the clause, and was never in the c-command domain of the antecedent in order to establish a binding relation. If, on the other hand, the object DP is focalized as in (11-c), the sentence remains grammatical on a bound reading. The antecedent still binds the reflexive anaphor. This means that the focalized constituent reconstructs at LF in order to establish the condition necessary for binding.

(11) *Reconstruction for binding Principle A:*

- a. Adé_i ka iwe nipa ara re_i.
Adé read book about body self
'Adé read a book about himself.'
- b. *(Ni ti) [iwe nipa **ara** **re_i**] Adé_i ka (a_i).
as for book about body self Adé read 3SG
'As for the book about himself, Adé read it.' (Topic)
- c. [Iwe nipa ara **re_i**_F **ni** Adé_i ka _____i.
book about body self FOC Adé read
'Adé read A BOOK ABOUT HIMSELF.' (Focus)

3.2 Island test

Movement out of an adjunct clause is prohibited because it constitutes an island. Here, I will use temporal and reason adjunct clauses to support my claim. The example in (12-b) shows that topicalization does not violate the temporal clause adjunct island. The presence of the resumptive pronoun obviates the island violation. (12-c) is ungrammatical because the focus constituent has been extracted from the object position of the temporal clause.

(12) *Temporal clause adjunct island:*

- a. Adé je ìrè [kí Bólá tó je èwà].
Adé eat rice before Bólá PRT eat beans
'Adé ate rice before Bólá ate beans.'
- b. (Ní ti) èwà_i, Adé je ìrè [kí Bólá tó je *(é)_i].
as for beans Adé eat rice before Bólá PRT eat 3SG
'As for the beans, Adé ate rice before Bólá ate it.' (Topic)
- c. *[Èwà_i_F **ni** Adé je ìrè [kí Bólá tó je _____i].
beans FOC Adé eat rice before Bólá PRT eat
'Adé ate rice before Bólá ate BEANS.' (Focus)

The same result is gotten with reason clause adjunct island (13). While topic does not violate the island, focus does.

(13) *Reason clause adjunct island:*

- a. Adé bínú [nítorípé Bólá je èwà].
Adé angry because Bólá eat beans
'Adé got angry because Bólá ate beans.'
- b. (Ní ti) èwà, Adé bínú [nítorípé Bólá je é].
as for beans Adé angry because Bólá eat 3SG
'As for beans, Adé got angry because Bólá ate it.' (Topic)
- c. *[Èwà_i]_F ni Adé bínú [nítorípé Bólá je _____i].
beans FOC Adé angry because Bólá eat
'Adé got angry because Bólá ate BEANS.' (Focus)

In summary, the result of these tests show that topics are base-generated in the language, while focus constituents undergo A'-movement. As stated earlier, subject focus behave differently from non-subject focus. I turn to this in the subsection.

3.3 Subject focus revisited

Similar to topic, subject focus does not violate islands. In contrast to what we see for object focus above, subject focus behaves differently to islands. Considering the Complex Noun Phrase in (14) and the reason adjunct clause in (15), what looks like subject extraction from these constructions is indeed base-generation which involves resumption, because it does not violate the islands. If movement really took place, we would expect a violation of the islands.

(14) *Complex Noun Phrase Constraint:*

- a. Adé je oúnje tí Bólá ra
A. eat food REL B. buy
'Adé ate the food that Bólá bought.'
- b. [Bólá]_F ni Adé je oúnje tí *(ó) ra
Bólá FOC A. eat food REL 3SG buy
Lit: 'BÓLÁ, Adé ate the food that bought.'

(15) *Reason clause adjunct island:*

- a. Adé bínú [nítorípé Bólá je èwà].
Adé angry because Bólá eat beans
'Adé got angry because Bólá ate beans.'
- b. [Bólá]_F ni Adé bínú [nítorípé *(ó) je èwà].
Bólá FOC Adé angry because 3SG eat beans
Lit: 'BÓLÁ, Adé got angry because ate beans.'

One final point that is worth discussing is the status of the subject focus resumption in the literature. Researchers like Awóbùlúyì (1978, 1992, 2008) and Ilori (2010) have argued that “the 3SG non-emphatic subject pronoun is phonetically realized as \emptyset in Standard Yorùbá, for some yet unidentified reasons” (Ilori 2010: fn. 94).¹⁰ The claim is that what is usually seen as a subject resumptive pronoun, is a High Tone Syllable (HTS) which is used for ‘non-future’ tense marking in the language, while the subject resumptive pronoun itself is covert (cf. (16-a)).¹¹ It seems that this only applies to singular subject focus because when the subject focus is plural, we get an overt resumptive pronoun which agrees with their antecedent in number and person feature, as in (16-b). There are many issues with this claim. While it is true that there seems to be a high tonal syllable/reflex with regard to subject and tense, the claim that examples like (16-a) involve null resumption is problematic. The first question is why is the resumptive pronoun of singular subject focus covert while that of the plural subject focus is overt? Secondly, how do we account for the obligatory status of \circ in focus context, and its optionality in non-focus context? For instance, in a non-focus sentence, the high tone can cliticize to the final syllable of the preceding subject. Compare (17-a) with (17-b) with a special focus on the tone of the last syllable of the subject.¹²

- (16) Adapted from (Ilori 2010: 240)

- a. Olùkó_i **ni** [\emptyset_i] ó nà Akin.
teacher FOC 3SG HTS beat Akin
'It was the teacher that beats Akin.'
- b. [Olùkó àti Akòwé_i], **ni** [$\emptyset_i/wón_i$] ó nà Akin.
teacher and secretary FOC 3SG/3PL HTS beat Akin
'It was the teacher and the secretary that beat Akin.'

- (17) a. **Akin ni** ó je işu.

Akin FOC 3SG eat yam
'AKIN ate yam.'

- b. **Akín** je işu.

Akin eat yam
'Akin ate yam.'

A third challenge to this claim is that when the focus constituent is any of the other persons (1/2), and not a third person, having the so-called HTS \circ is

¹⁰See Bámgbósé (1967), Fresco (1970), Oyelaran (1970), Stahlke (1974) for different views of what the HTS is.

¹¹See Ilori (2010) for an overview of the different claims about the HTS, including literature. Also see Ilori (2010) for arguments in support of the HTS as a 'non-future' tense marker.

¹²In fact, other researchers who have worked on the focus of the language, analyse \circ as a resumptive pronoun (cf. Adesola 2005).

dispreferred (18).

- (18) a. [Ìwo]_F **ni** o/?ó je iṣu náà.
2SG.EMPH FOC 2SG/HTS eat yam DEF
'YOU ate the yam.'
b. [Èmi]_F **ni** mo/?ó je iṣu náà.
1SG.EMPH FOC 1SG/HTS eat yam DEF
'I ate the yam.'

My proposal is that since the high tone seems to float and associate to contiguous elements like the subject, it must have done so to the resumptive pronoun too. In fact, cases where the resumptive pronoun are claimed to be null is not true. The tone on the 3SG happens to be the same as the floating high tone which is claimed to mark non-future tense. So, what happens is only a tonal sandhi. This also accounts for the cases where the high tone is realized on the final syllable of a preceding subject (see (17) above)

We are left with one scenario, however, where ó is present in a non-focus sentence like (19). This can straightforwardly be explained if we believe that subjects are usually topics.¹³ In this case, the so-called HTS is actually a resumptive pronoun that has undergone a tonal sandhi with the floating high tone; in line with the described topic data above.¹⁴

- (19) **Adé**, ó pa eku náà.
Adé 3SG kill rat DEF
'Adé, he killed the rat.'

We now turn to the proposed analysis which captures both the observed asymmetries and the data in general.

4 Towards a criterial analysis

In the previous section, I showed that both topic and focus are realized in the left periphery of the clause by different means; base-generation vs. movement. They are not only different with regard to the means by which they are realized in the left periphery, but also with the use of resumption. Table 1 below presents a summary of the asymmetries. The aim of this section is to propose a syntactic analysis for the observed asymmetries between the two A'-dependencies; having in mind that subject focus behave similarly to topics. However, the difference between topic and subject focus are the distinct positions that they occupy, and the discourse features that they possess.

¹³ Although, this is not always the case.

¹⁴ I must admit that more research needs to be done on this phenomenon.

	Movement	Resumption
Topic (subject/object)	-	+
Subject focus	-	+
Non-subject focus	+	-

Table 1: Topic-focus asymmetries

In order to provide an analysis that captures both the left peripheral nature and the use of resumption of these dependencies, I will adopt the *Criterial approach* (cf. Rizzi 1997, 2006, Rizzi and Shlonsky 2007, Shlonsky 2014). One of the major principles which guides the introduction and development of the criterial approach is *movement as a last resort operation* (cf. Chomsky 1986, Fox 1995, Reinhart 1997). This means that movement is neither free nor optional. If by any means movement occurs, it must be due to some interface requirement; Case-related or interpretation-related. The latter requirement is of importance to us here. In Yorùbá, such movement is considered to be discourse-related. Under the Criteria approach, movement is assumed to be triggered by the need for feature matching. It is argued that a head X, with a feature F, probes for a goal Y(P), specified with the same feature F, in its c-command domain.¹⁵ The established link then requires that Y(P) must be in the immediate environment of X. The goal can either be a head Y or an entire phrase YP which has the matching feature on its head. The former is used for head movement, while the latter is a case of phrasal movement to Spec,XP. A slightly revised version of Rizzi's 2006 formal definition is given in (20) below (adapted from Rizzi 2006: 99).

$$(20) \quad X_F \dots Y_F \dots = YP/Y_F \quad X_F \dots t \dots$$

Extending these assumptions to information structure, Rizzi (2006) proposes that both topic and focus heads have topic criterion and focus criterion. These criterial heads are responsible for the realization of the topic and focus constituents in their respective specifiers in the left periphery; criterial positions. This is how both the discourse-related meaning and its scope are interpreted at the interface level. Therefore, when a phrase moves to a criterial position after meeting a criterion (topic or focus criterion in this case), it is frozen in that position, and cannot move any further (cf. (21)).¹⁶

¹⁵Following Aboh (2010), I assume that the matching features on the topic or focus constituents are added at the numeration. Thus, the features are not added from the lexicon (see also Cruschina 2009)

¹⁶Although the long-distance movement data is not included here, it works the same way. The only question is that how can the criterial freezing analysis account for the intermediate movement step(s) assumed for long-distance movement? As a solution, Rizzi (2006, 2009) assumes a dis-

(21) **Criterion Freezing:**

a phrase meeting a criterion is frozen in place, and its chain cannot extend further (Rizzi 2006:97).

Also within the criterial approach, Rizzi (2006) proposes what he calls the *Subject Criterion* (see also Rizzi and Shlonsky 2007, Rizzi 2009, Shlonsky 2014). Firstly, the subject criterion is analogous to Chomsky's traditional EPP requirement which demands that all clauses must have a subject. Secondly, Rizzi (2006, 2009) uses it to reanalyse the subject/object asymmetries that is traditionally associated with the Empty Category Principle (ECP) (cf. Chomsky 1982). The ECP prevents subject from moving out of the embedded clause subject position. If this happens, it results in an ungrammatical sentence as in **Who do you think that t ate the sausage?*. This is popularly known as the *that-trace effect* (cf. Chomsky and Lasnik 1977). However, with long-distance object movement, the sentence is grammatical: *What do you think that Adam ate t?*. As a result, there is subject criterion, but no object criterion.¹⁷ In short, the EPP and the ECP are reduced to a criterial feature (subject criterion) which must be checked, and which freezes the constituent that meets the criterion.

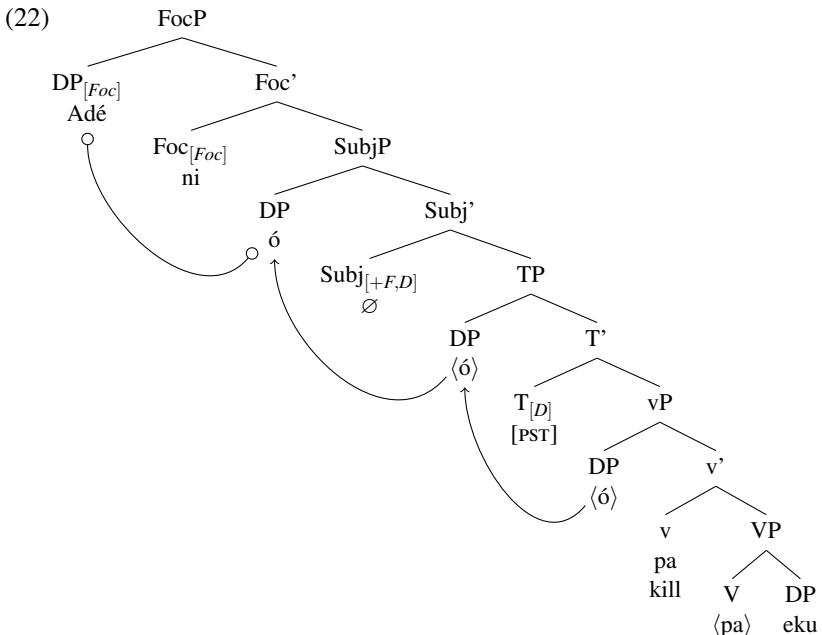
However, cross-linguistic studies have shown that languages use different means to skip the criterial subject position in order to avoid being frozen. There are also cases where there is no movement to begin with, but languages develop different strategies to satisfy the Subject Criterion. One of such strategies involves the use of resumption (cf. Rizzi and Shlonsky 2007, Shlonsky 2014). This is the strategy that Yorùbá employs, as we will see below.

4.1 Focus analysis

Beginning with focus, (22) is a structural representation of the subject focus example in (6-b) above. Recall that subject focus does not involve movement; it is base-generated in Spec,FocP where it directly satisfies the focus criterion [Foc] on the Foc head; as in a Spec-head agreement fashion.

tinction between Substantive Criterial Features (SCFs) and Formal Criterial Features (FCFs) (cf. McCloskey 2002). Since movement is feature-driven, the FCFs are responsible for the intermediate movement steps which satisfy locality requirements (in the style of Chomsky's 2001, 2008 phase edge and edge features). It is at this position that the relevant XP becomes accessible for feature matching with and movement to a higher position with an SFC.

¹⁷Chomsky's 1982 own solution to this asymmetry was based on (proper) government of movement traces. While the trace of the fronted object is properly governed by the lexical verb, that of the subject is ungoverned. Hence, the ungrammaticality. However, some issues were raised on the ECP approach. For example, the *that-trace effect* is repaired in the presence of intervening materials, e.g. *Who do you think that, after cooking, ate the food?* (for some of the issues raised, see Rizzi and Shlonsky 2007, Bayer and Salzmann 2013).



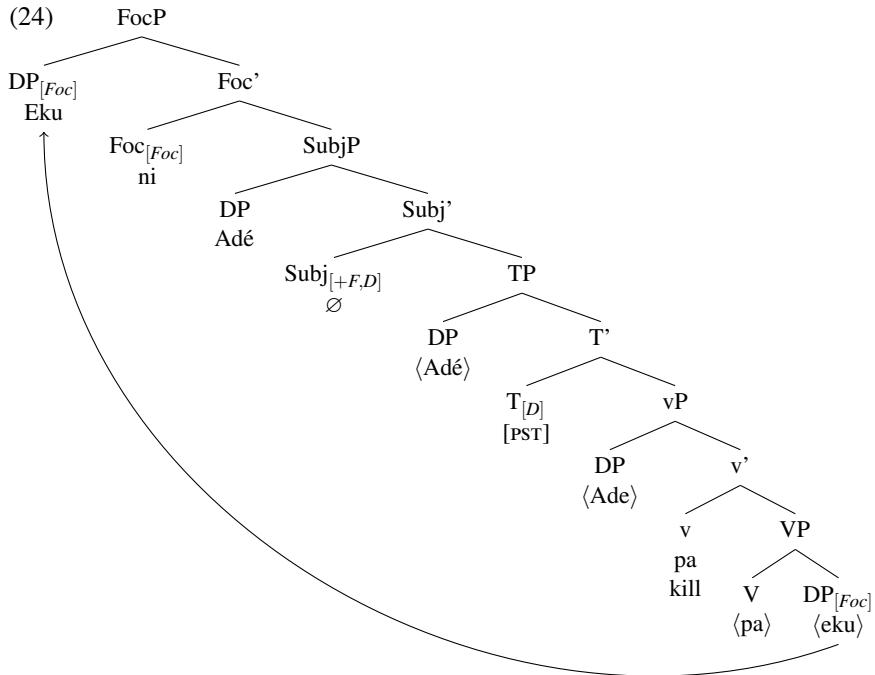
The presence of a resumptive pronoun is accounted for by the *Subject Criterion*. This is the case with the subject focus in (22). The subject does not undergo A'-movement, but it is externally merged at Spec,FocP. This leaves the Subject Criterion unsatisfied. The language therefore employs the resumption strategy. The resumptive pronoun originates from Spec,vP, and moves to Spec,SubjP. The TP serves as an intermediate landing site for the resumptive pronoun (à la Shlonsky 2014) (23). Having the EPP on T in this case would be redundant, and at the same time T is not a criterial head. So, what other role does T play apart from serving as an intermediate movement site? Shlonsky (2014) argues that person and number features are associated with different but adjacent heads: Subj and T. While Subj is specified for person feature [D_{person}], T is specified for number feature [D_{number}]. So for full agreement to take place, both heads must be projected (see Shlonsky 2014: for some supporting arguments). Thus, T does not only serve as an intermediate landing site, but also probes for number feature. When the resumptive pronoun is in Spec,TP, it becomes directly accessible to Subj where it both satisfies the subject criterion (and is frozen) and agrees with it in person feature.

(23) **Spec,TP intermediate movement generalization**

(Shlonsky 2014: 77)

XP movement through Spec,TP is only possible *en route* to some criterial position.

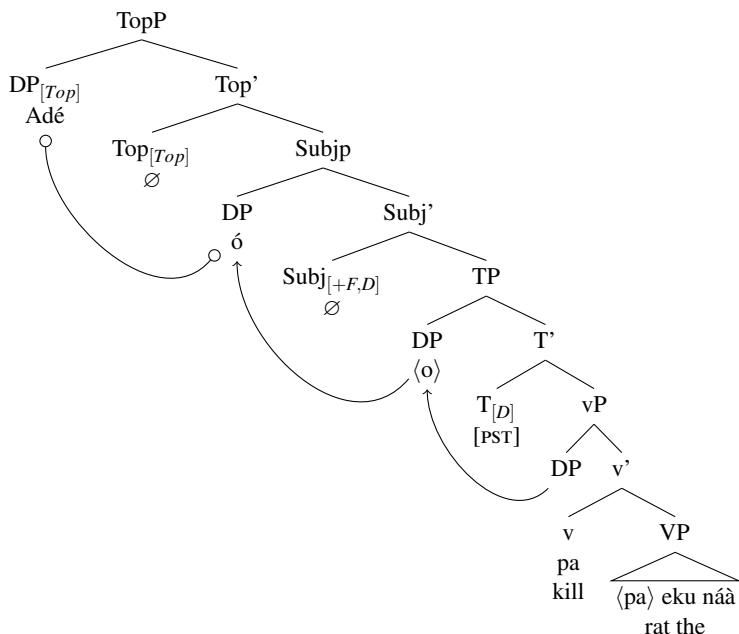
Object focus, on the other hand involves movement with no resumption. This is expected since there is no object criterion which would have required a resumption if the object focus was base-generated. In (24), the direct object moves to Spec,FocP in order to satisfy the focus criterion. Again, the subject moves through Spec,TP en route to Spec,SubjP where it satisfies the subject criterion and gets frozen, i.e. no further movement is allowed. I want to point out here that unlike focus movement which is an A'-movement, movement to Spec,SubjP is an A-movement.



4.2 Topic analysis

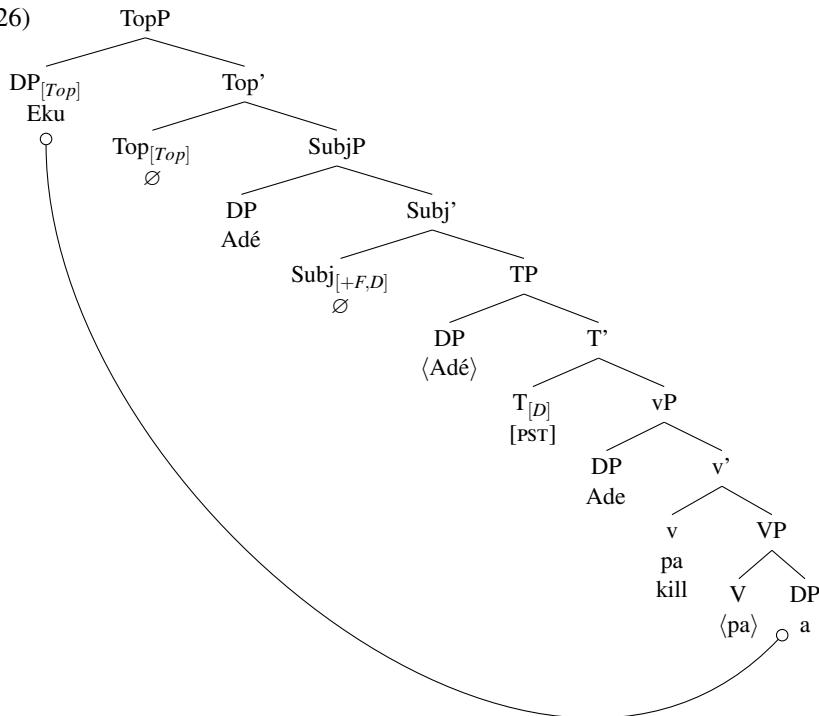
The analysis for subject topic is similar to that of the subject focus above. The only difference here is that the subject topic is base-generated in Spec,TopP where it satisfies the topic criterion [Top] (cf. (25)).

(25)



The object topic is also base-generated in Spec,TopP, and has a resumptive pronoun in its thematic position; complement of the verb (26). Since there is no object criterion, at first sight, it seems that the presence of a resumptive pronoun in the thematic object position constitutes a challenge for the criterial freezing approach. However, this is not case if we understand the underlying principle of the criterial analysis. This is captured in the definition given in (21). We have the subject criterion which causes a phrase (subject) to freeze in Spec,SubjP, but can be substituted by a resumptive pronoun when it is dislocated due to an A'-requirement. When an object has a resumptive pronoun, the prediction is that the latter is not frozen in place if there is no object criterion. Although, we do not have any data to support this prediction in Yorùbá, in Hebrew however, the prediction is borne out.

(26)



In Hebrew, there is a subject-object asymmetry in restrictive relative clauses with regard to resumptive pronouns. Consider the examples in (27) and (28) below from Rizzi and Shlonsky (2007: 119-120) who also cited Borer (1984: 249-250).¹⁸ The resumptive pronoun of the object relative in (27) can successively be fronted to a topic or topic-like positions in the iterated embedded CP/ForceP peripheries Rizzi (1997).¹⁹ This is possible because there is no object criterion to freeze the resumptive pronoun. The case is entirely different for subject relative resumptive pronouns (28). Once the resumptive pronoun has satisfied the subject criterion as in (28-a), it is frozen. Thus, the examples (28-b) and (28-c) are ungrammatical.

¹⁸Few adjustments were made to the glossing of the data.

¹⁹This has also been used as evidence for a successive cyclic movement of *wh*-phrases (cf. Borer 1984).

- (27) a. Kaniti et ha-šulxan še xana amra še dalya
(I).bought ACC DEF-table COMP Hannah said COMP Dalya
ma’amina še Kobi raca **oto**.
believes COMP Kobi wanted him
‘I bought the table that Hannah said that Dalya believes that Kobi wanted.’
- b. Kaniti et ha-šulxan še xana amra še dalya
(I).bought ACC DEF-table COMP Hannah said COMP Dalya
ma’amina še **oto** Kobi raca ____.
believes COMP him Kobi wanted
‘I bought the table that Hannah said that Dalya believes that Kobi wanted.’
- c. Kaniti et ha-šulxan še xana amra še **oto** dalya
(I).bought ACC DEF-table COMP Hannah said COMP him Dalya
ma’amina še ____ Kobi raca ____.
believes COMP Kobi wanted
‘I bought the table that Hannah said that Dalya believes that Kobi wanted.’
- (28) a. Kaniti et ha-šulxan še xana amra še dalya
(I).bought ACC DEF-table COMP Hannah said COMP Dalya
ta’ana še **hu** ya’ale harbe kesef.
claimed that he FUT.cost a lot money
‘I bought the table that Hannah said that Dalya claimed that will cost a lot of money.’
- b. *Kaniti et ha-šulxan še xana amra še **hu** dalya
(I).bought ACC DEF-table COMP Hannah said COMP he Dalya
ta’ana še ____ ya’ale harbe kesef.
claimed that FUT.cost a lot money
‘I bought the table that Hannah said that Dalya claimed that will cost a lot of money.’
- c. *Kaniti et ha-šulxan še **hu** xana amra še ____
(I).bought ACC DEF-table COMP he Hannah said COMP
dalya ta’ana še ____ ya’ale harbe kesef.
Dalya claimed that FUT.cost a lot money
‘I bought the table that Hannah said that Dalya claimed that will cost a lot of money.’

Therefore, the object topic resumption in Yorùbá still falls in place with the criterial approach.

5 Conclusion

This paper set out to describe and provide an analysis for the asymmetries that exist between topic and focus realization in Yorùbá. I showed that both A'-dependencies use different strategies for left dislocation. While topic, whether aboutness or contrastive, is base-generated in the left periphery of the clause, focus undergoes A'-movement to the left periphery. In contrast, I argued that subject focus does not undergo A'-movement. It is also base-generated like the topic constituent. The base-generated constituents are co-referenced with resumptive pronouns that occupy their canonical positions. I went further to propose an analysis that is based on the criterial approach, which coalesces both the dislocation strategies and the absence/presence of a resumptive pronoun. I argue that the topic and focus constituents occupy the Spec of two distinct criterial heads: Top and Foc. Each head has a criterion that must be satisfied under a Spec-head relationship. For the case of the subject topic and subject focus resumption, I propose that this is due to the subject criterion which requires that a subject cannot move further, having satisfied the subject criterion. However, in A'-dependency context, the canonical subject can be realized in the left periphery which means that the subject criterion would be unsatisfied. To satisfy the criterion, a resumptive pronoun is used, which is a cross-linguistic means to allow a well-formed A'-construction. The immovability of subjects does not apply to objects because there is no object criterion. So whether the object is resumed (object topic) or not (object focus), it does not matter.

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Relative clause extraposition and information structure

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1 Introduction

As in many other languages, relative clauses in German can appear adjacent to the head noun they modify or separated from their head noun in clause-final position. This is illustrated in (1) (here and in the following, relative clauses are highlighted by printing them in italics).

- (1) a. Peter hat ein Buch, *das ihm Maria empfohlen hat*,
Peter has a book which him Maria recommended has
gelesen.
read
'Peter read a book that Maria had recommended to him.'
- b. Peter hat ein Buch gelesen, *das ihm Maria empfohlen hat*.
Peter has a book read which him Maria recommended has
'Peter read a book that Maria had recommended to him.'

In (1-a), the relative clause appears in its canonical position adjacent to the head noun that it modifies. (1-b), in contrast, is an instance of relative clause extraposition (RCE): the relative clause has been extraposed behind the clause-final verb, with the consequence that head noun and relative clause are no longer adjacent to each other but separated by the clause-final verb.

Whereas RCE in German typically involves putting a relative clause behind the clause-final verb (the so-called *afterfield* 'Nachfeld'), RCE in English typically affects relative clauses modifying the subject, putting them after the verb into a clause-final position, as illustrated by example (2) from Francis and Michaelis (2016).

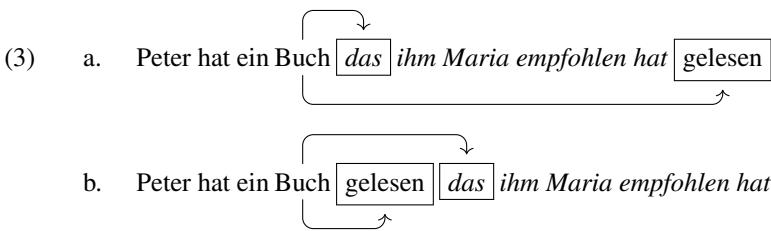
- (2) a. Some research *that refutes the existing theories with very clear and convincing new evidence* was conducted.
b. Some research was conducted *that refutes the existing theories with very clear and convincing new evidence*.

RCE raises two major questions. The first one concerns the syntactic representation of sentences containing adjacent and extraposed relative clauses. Since this question is beyond the scope of the present article (see Baltin 2006 for an overview of various theoretical positions), I will simply follow Büring and Hartmann (1997) and assume that relative clauses are base-generated adjacent to their head noun and RCE is derived by moving the relative clause into clause-final position. The second major question is raised by the optionality of RCE: how do speakers decide whether to produce a relative clause in adjacent or extraposed position when producing a sentence containing a relative clause. This is the question that is in the focus of the present paper.

Corpus studies as well as experimental investigations show that the choice of realizing a relative clause in adjacent or extraposed position is subject to a multitude of factors (see Francis and Michaelis 2014 and Strunk 2014 for large lists of factors). Two kind of factors are of special importance: factors rooted in the ease of sentence processing and factors related to information structure. With regard to ease of sentence processing, research on both English, German, and other languages has shown that both extraposition distance and relative clause length affect the likelihood of RCE.

One way to understand such effects is in terms of dependency length. Several accounts of syntactic complexity during language production and comprehension have proposed that shorter dependencies are easier to process than longer dependencies (Gibson 2000, Hawkins 2004, Temperley 2007, Futrell et al. 2020), which can be captured in the slogan “Minimize dependencies!”.

Two different dependencies are crucially involved in RCE, as illustrated in (3): the dependency between the head noun and the relative pronoun and the dependency between the head noun and the clause-final verb.



The dependency between head noun and relative pronoun is optimally short when head noun and relative clause are adjacent to each other, as shown in (3-a). This dependency gets longer when the relative clause is extraposed, as shown in (3-b). In (3-b), only a single word, namely the clause-final verb, intervenes between head noun and relative clause, and the dependency between head noun and relative pronoun is therefore still rather short. In other cases, however, relative clauses are extraposed over a much longer distance, as illus-

trated by the example in (4).

- (4) a. Peter hat ein Buch, *das ihm Maria empfohlen hat, mit großer Begeisterung gelesen.*
 Peter has a book which him Maria recommended has with great enthusiasm read
 ‘Peter read a book that Maria had recommended to him.’
- b. Peter hat ein Buch **mit großer Begeisterung gelesen, das ihm Maria empfohlen hat.**
 Peter has a book with great enthusiasm read which him Maria recommended has
 ‘Peter read a book that Maria had recommended to him.’

The second dependency crucially involved in RCE is the dependency between head noun and clause final verb. As shown in (3), this dependency is optimally short when the relative clause is extraposed whereas it is lengthened by a relative clause in adjacent position. How much it is lengthened depends on the length of the relative clause – the longer it is, the longer gets the distance between head noun and clause-final verb.

In sum, RCE exhibits a trade-off between two dependencies – minimizing the dependency between head-noun and relative pronoun favors relative clauses in adjacent position whereas minimizing the dependency between head-noun and clause-final verb favors relative clauses in extraposed position. Corpus studies as well as experimental investigations have shown that both dependencies affect the rate of extraposition, although not with equal weight. In both German and English, the major determinant of RCE is the dependency between head noun and relative clause (for German, see Hawkins 1994, Uszkoreit et al. 1998, Strunk 2014, Bader 2014; for English, see Francis 2010, Francis and Michaelis 2014, 2016). RCE is preferred if this dependency, and thus the extraposition distance, is short. With longer distances, relative clauses are preferred in adjacent position. The dependency between head and verb, and thus relative clause length, also affects the rate of RCE, but to a lesser degree.

The evidence concerning dependency length is rather similar for English and German; with regard to information structure, by and large the same seems to hold. At least in typical cases, RCE in English is acceptable with passive or presentative verbs but not with agentive verbs (see (5) from Culicover and Rochemont 1990) and with indefinite but not definite subjects (see (6) from Huck and Na 1990) (see Walker 2013, Weirick and Francis 2020 for experimental evidence).

- (5) a. A man arrived *who wasn’t wearing any clothes.*
 b. ??A man screamed *who wasn’t wearing any clothes.*

- (6) a. A guy just came in *that I met at Treno's yesterday*.
b. ??The guy just came in *that I met at Treno's yesterday*.

As discussed in Francis and Michaelis (2016), the effects of focus and definiteness follow from an information-structural constraint on English RCE which requires that the subject is focal and/or the VP backgrounded for RCE to be fully acceptable.

For German, definiteness has been shown to have a strong effect on the rate of extraposition during language production – in the corpus study of Strunk (2014), the rate of extraposition was 66% for indefinite antecedent NPs but only 35% for definite antecedent NPs. However, in contrast to English, German does not seem to exhibit an acceptability difference depending on definiteness, so the translations of both sentences in (6) are fully grammatical in German, as shown in (7).

- (7) a. Soeben kam ein Kerl herein, *den ich gestern bei Treno's kennengelernt habe.*
met have.
b. Soeben kam der Kerl herein, *den ich gestern bei Treno's kennengelernt habe.*
met have.

Not only definiteness affects extraposition rate in both English and German in parallel ways, but the same has been claimed for focus. Based on the results of a corpus study, Shannon (1992: 273) derives the following constraint on RCE in German: “With an extraposed relative clause, the antecedent (and/or the relative clause itself) contains the sentence focus”. In contrast to the later corpus study of Strunk (2014), the corpus study of Shannon (1992) is not a multivariate analysis, controlling for the effects of other variables that may be responsible for the purported focus constraint. For example, definiteness and focus effects are likely correlated to some degree because indefinite NPs are more often discourse-new and focal than definite NPs. On the other hand, the corpus study of Strunk (2014) does not include focus as a variable, so we don't know whether focus has an separate effect in addition to the large number of variables included in Strunk's multivariate analysis. Because neither the corpus data of Shannon (1992) nor those of Strunk (2014) provide the relevant data, I ran an experiment investigating whether the discourse status of a relative clause affects the speaker's decision of producing the relative clause in adjacent or extraposition position.

2 Experiment

In order to test whether the discourse status of a relative clause affects the decision to extrapose, an experiment using the procedure of constrained production (e.g., Ferreira 1994, Stallings and MacDonald 2011, Verhoeven 2014) was run. This procedure requires from participants to produce sentences using prespecified sets of words or phrases, as illustrated in (8) by an item from the current experiment. To make a well-formed sentence out of the five fragments in (8), at least some reordering is necessary because stringing the fragments together from left to right would not give a grammatical result. The two most probable linearizations of the fragments in (8) are the ones shown in (9-a) and (9-b).

(8) **Fragments for target sentence**

kann | helfen | Peter | dem Lehrer | der in Not geraten ist
can | help | Peter | the teacher | who is in need

(9) **Target sentences for the fragments in (8)**

a. Adjacent RC:

Peter kann dem Lehrer, *der in Not geraten ist*, helfen.
Peter can the teacher who in need run is help
‘Peter can help the teacher who is in need.’

b. Extraposed RC:

Peter kann dem Lehrer helfen, *der in Not geraten ist*.
Peter can the teacher help who in need run is
‘Peter can help the teacher who is in need.’

In (9-a) and (9-b), subject and object as well as modal verb and main verb are ordered in the most common way for a German main clause: The subject precedes the object, the finite modal verb occupies the verb-second position, and the main verb occurs clause-finally. What differs between (9-a) and (9-b) is the position of the relative clause, which appears adjacent to its head noun in (9-a) and extraposed to the afterfield in (9-b).

The discourse status of the relative clause was manipulated by having a context preceding the sentence fragments. Two kinds of contexts were used, establishing the relative clause that was part of the fragments either as part of the topic or as part of the focus, as illustrated in (10).

(10) **Contexts**

a. *Topic context*

Peter hat einen Lehrer, *der in Not geraten ist*. Dieser Lehrer hatte stets ein offenes Ohr für seine Schüler.
‘Peter has a teacher who is in need. This teacher always had an open ear for his students’

b. *Focus context*

Peter hat schon vielen Leuten an seiner Schule helfen können.
Ich habe auch schon eine Idee, wem Peter als nächstes helfen könnte.

‘Peter has been able to help many people at his school. I already have an idea who Peter could help next.’

As shown in (10), each context consisted of two sentences. In the *topic context* (10-a), the first sentence introduced one protagonist using a proper name (*Peter*) and a second protagonist using an indefinite NP (*einen Lehrer* ‘a teacher’) modified by a relative clause. In the second context sentence, a statement was made about the second protagonist, thereby establishing this protagonist as topic of this sentence. The target sentence mentioned both protagonists introduced before – the protagonist referred to by a proper name in the first sentence and the other protagonist that was referred to in both context sentences. Because only the latter was mentioned in the second context sentence, it is the topic in the target sentence according to prominent definitions of sentence topic (e.g., Reinhart 1981, Beaver 2004). The relative clause, which was always presented as a fragment of its own, was therefore a part of the topic phrase.

In the *focus context* (10-b), the first sentence contained the same proper name as the topic context as well as a plural NP referring to a set of human referents. The second sentence in the focus context consisted of a main clause followed by an embedded wh-question. The main clause always contained the first person pronoun *ich* ‘I’ as subject and a predicate selecting an indirect question as complement. The indirect question was a wh-question with the proper name introduced in the first sentence as subject. The verb of the wh-question was identical to the main verb in the target sentence and the wh-phrase was the object of this verb. The following target sentence that had to be produced from the five sentence fragments answered the wh-question, with the definite NP fragment and the relative clause fragment together corresponding to the wh-phrase. In this way, the relative clause of the target sentence was always part of the focus, as established by the wh-question of the second context sentence.

The NP whose discourse status was manipulated by presenting either a topic or focus context was always a definite NP, as in the example target sentence in (8). While being definite is typical for a discourse-given topic NP, a focus NP could as well be indefinite, especially when its referent is discourse new. The reason for including a definite NP fragment following both types of contexts was that extraposition from an indefinite NP has been found to be more likely than extraposition from a definite NP, as discussed above (see Strunk 2014, for German and Francis and Michaelis 2016, for English). Since this was found even without a preceding context, using definite NPs following topic contexts and indefinite NPs following focus contexts would create a confound making

it impossible to interpret a potential context effect in an unambiguous way.

2.1 Method

2.1.1 Participants

32 students from the Goethe University Frankfurt participated in the experiment for course credit. All participants were native speakers of German and naive with respect to the purpose of the experiment.

2.1.2 Materials

Focus context	Thomas schwärmt für den Sänger, der hier ein Konzert gibt. Dieser Sänger hat tatsächlich ein unglaubliches Talent. ‘Thomas raves about the singer who is giving a concert here. This singer actually has incredible talent.’
Topic context	Thomas hat leider bis jetzt noch keinem seiner Stars begegnen können. Ich ahne allerdings, wem er möglicherweise begegnen könnte. ‘Unfortunately, Thomas hasn’t been able to meet any of his stars yet. However, I have an idea who he might possibly meet.’
Target fragments	kann begegnen Thomas dem Sänger der hier ein Konzert gibt can meet Thomas the singer who here a concert gives

Table 1: Example stimulus

Sixteen experimental items were constructed, with each item consisting of a context and a set of five fragments representing the target sentence to be produced (see (10)/(8) and Table 1). For each item, the context came in two versions according to the factor Context with the two levels “Topic” and “Focus”. All contexts consisted of two sentences and were constructed as shown in (10). Topic contexts always introduced a referent modified by a relative clause. This referent as well as the modifying relative clause were taken up again in the target sentence. In focus contexts, the second sentence always ended with a wh-question. The referent modified by a relative clause in the target sentence corresponded to the wh-phrase in the second context sentence and was thus a focus.

In contrast to the context, the five fragments used to specify the target sentence did not vary within an item, that is, topic and focus context were always followed by the same fragments. For each experimental item, the target sentence was divided into five fragments, as illustrated in (8): modal verb, main

verb, proper name, definite NP, relative clause. The proper name contained in the fragments was already introduced in both the topic and the focus context. The definite NP and the relative clause were already introduced in the topic context but not in the focus context. All relative clauses consisted of five words.

The 16 experimental items were distributed across two lists according to a Latin square design. Each list contained exactly one version of each item and an equal number of items in each condition. Each experimental list was combined with 64 filler items for a total of 80 items. The filler items were from unrelated experiments investigating the order of subject and object. Like the experimental items, the filler items consisted of a context followed by a set of sentence fragments.

2.1.3 Procedure

The experiment used the method of constrained production that has been used before by, e.g., Ferreira (1994), Stallings and MacDonald (2011), and Verhoeven (2014). The five sentence fragments appeared on a computer screen in front of the participant, one below the other. The modal verb always appeared in the highest position, followed by the main verb. Next came the proper name intended as subject, followed by a definite masculine NP unambiguously marked for dative case. The relative clause always came last in the lowest position on the screen. Participants were asked to mentally form a sentence using all words seen on the screen. They were told that function words could be added in order to arrive at a complete sentence, but that no additional content words should be used. As soon as they had formed a complete sentence, they pressed a key on the computer keyboard and uttered the sentence they had formulated.

2.2 Scoring

All 512 sentences produced by the participants were digitally recorded for later scoring. In order to be included in the analysis, a sentence had to include a relative clause that could be unambiguously classified as being extraposed or not. This excluded sentences in which participants did not include the modal verb and used the main verb as finite verb instead, as for example in *Peter hilft dem Lehrer, der in Not geraten ist.* ('Peter is helping the teacher who is in need.') Superficially, this sentence contains a relative clause adjacent to its head noun. However, because the sentence lacks an overt verb in clause-final position, the position of the relative clause in the underlying syntactic structure cannot be determined – the relative sentence could be attached to the preceding NP or it could have been moved behind the empty verb position. Sentences of this

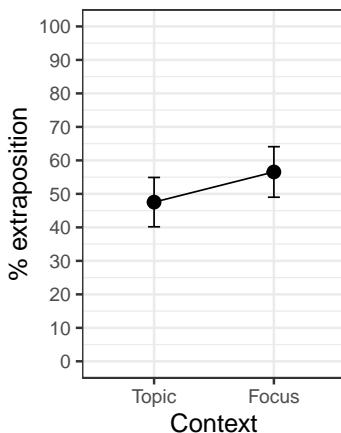


Figure 1: Percentages of extraposition depending on whether the relative clause was topic or focus given the preceding context

type were therefore excluded. In some cases, participants converted the relative clauses to another type of embedded clause (for example, an infinitive introduced by *um* ‘in order to’). Sentences where this had happened were also excluded from the analysis. Smaller deviations from the fragments presented for production, for example lexical substitutions, did not lead to exclusion because such deviations are of no relevance for the question under consideration. Overall, 40 sentences were excluded from the analysis, 19 with a preceding topic context and 21 with a preceding focus context. Thus, the factor Context did not have an effect on whether participants produced a sentence without a relative clause unambiguously in adjacent or extraposed position.

2.3 Results

All statistical analyses were conducted using the statistics software R (R Core Team 2022). For the inferential statistics, generalized mixed models were computed using the R package lme4 (Bates et al. 2015). The main factor was entered as a fixed effect into the models, using effect coding (0.5 vs. -0.5). In addition, random effects were included for items and subjects with maximal random slopes supported by the data, following the strategy proposed in Bates et al. (2015).

Figure 1 shows the percentages of sentences produced with extraposed relative clause depending on the preceding context. In a topic context, relative

clauses appeared extraposed in 47% of all cases. In a focus context, the rate of extraposition increased to a value of 56%. This resulted in a significant main effect of Context in a generalized mixed effect model with random intercepts for participants and items ($\hat{\beta} = 0.8062$, standard error = 0.2825, $z = 2.854$, $p < 0.01$).

3 Discussion

This paper has presented an experiment that investigated the role of information structure on relative clause extraposition in German. The experiment revealed mixed results. On the one hand, the results showed the expected effect of discourse status – the rate of extraposition was higher when the relative clause modified the focus than when it was the topic. Since the host NP was definite in both cases, it can be excluded that this just another instance of the often found definiteness effect on extraposition. On the other hand, with about 10% difference between extraposition from a topic and extraposition from a focus, the effect of discourse status was relatively small. In sum, while the results of the experiment confirm that the decision to extrapose is affected by information structure, it also shows that information structure has only a weak effect on this decision.

One reason for the weak effect of information structure may have to do with the short extraposition distance, which was just a single word, namely the clause-final infinite verb. Shannon (1992) explains the focus constraint on extraposition by noting that NPs in the focus are often discourse new whereas NPs in the background and topical NPs in particular are typically discourse given. For non-focal NPs, whose referent is already given in the context, the relative clause has an identificational function. To fulfill this function in an optimal way, the distance between antecedent NP and relative clause should be as short as possible. A relative clause modifying a focal NP, in contrast, presents additional information about the NP's referent but is not needed to identify the referent in the preceding context. Presenting the relative clause with some delay therefore does no harm in the case of discourse-new focal NPs. With an extraposition distance of just a single word, the delay was not severe, which may explain why the rate of extraposition was only moderately lower in the case of topical relative clauses than in the case of focal relative clauses.

Overall, relative clauses were produced about equally often in adjacent and extraposed position, that is, the overall rate of extraposition was about 50%. For extraposition, this is a relatively low value in comparison to extraposition rates in corpus data, which show about 90% extraposition when only the clause-final verb must be crossed (Bader 2014, Strunk 2014). The relatively low value of extraposition given the very short extraposition distance is

also surprising because sentences in which only the verb follows an adjacent relative clause have been claimed to be prosodically sub-optimal (so-called ‘prosodic monsters’, see Féry 2015). On the other hand, other experimental studies requiring the spoken production of relative clauses have found extraposition rates similar to the one found here (Bader 2014, Francis and Michaelis 2016). The reason for this discrepancy is an open question. It could be an artifact of how sentences are elicited in the laboratory. Alternatively, or in addition, it could indicate a difference between spoken and written language production. Assuming with Büring and Hartmann (1997) that relative clauses are base-generated adjacent to their antecedent NP in the middlefield, from where they can optionally be moved to a clause-final position, sentences with adjacent relative clauses are syntactically less complex than sentences with extraposed relative clauses. Because spoken language production is under tighter time constraints than written language production, speakers may more often stick to the underlying structure with the relative clause adjacent to its antecedent NP instead of performing the more costly movement operation that brings the sentence into a clause-final position. Further research is necessary to resolve these questions.

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A focus grammar of Aja

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1 Introduction

The present paper provides an overview of the formal means used to express the pragmatic category focus in Aja, a language spoken in Southern Benin and Togo by about 1.2 million people (Eberhard et al. 2023). Aja belongs to the Gbe continuum of the Kwa language group (Niger-Congo), and is one of the Gbe languages not very intensively explored so far (the only description is Tchitchi 1984).

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We understand information structure as the way in which information is organized in the utterance (cf. also the description as “information packaging” in Chafe 1976). Following Krifka (2007), it encompasses different notions, the most relevant ones being focus, topic and givenness. The category of Focus is taken here as that part of an utterance which gains special relevance against other parts of it (Dik 1997: 326).

Focus strategies were already well described for other Gbe languages. In his seminal paper on focus constructions in Ewe and Akan, Ameka (1992) analyses in detail different aspects of focus marking in both languages. He restricts, though, his presentation to cases of marked focus constructions. This leads Ermisch (2005: 112) to the conclusion that “there is no *in situ* or *post verbal* (argument) focus which leaves focus fronting to the left periphery as the only

option to express focus at all.” A comparable observation was made by Aboh (1998) for Gun and Lefebvre and Rousseau (2002) for Fɔn. On the basis of different texts, as narratives, descriptions and interviews, Fiedler (1998) gave a first overview on focus constructions in Aja, but again, only demonstrating marked strategies. In this paper, we will present new results concerning focus strategies in Aja, based on data of the Hwe dialect of Aja, elicited with the Questionnaire on Information Structure (Skopeteas et al. 2006) during field research between 2004 and 2007. Data were gathered with the help of one main language consultant who also assisted in transcribing, glossing and translating them.¹

The paper is structured as follows: First, the different strategies of focusing in Aja will be presented starting from structural considerations: (i) no special marking, (ii) syntactic, and (iii) morphological devices. This presentation is followed by a conclusion, summarizing the findings from the function-to-form perspective.

2 Focus strategies in Aja

There are different formal means to express focus on an element of an utterance. We find purely morphological marking and/or syntactic marking, as already described for other Gbe languages. As far as we know no phonological marking alone is used as a focusing device, but is attested to support the syntactic marking (cf. Fiedler and Jannedy (2013) for the closely related language Ewe). However, it turns out that formal marking is not obligatory at all.

2.1 Unmarked foci

This kind of focus realization is characterised by the canonical sentence structure S-AUX-V-O without any morphological marking, and, as far as we can say, no special prosody. This structure is typical for sentences which represent the categorical type of judgement. By definition, categorical statements display an internal topic-comment structure as opposed to thetic utterances without any internal information structuring (Sasse 1987). In categorical statements in SVO languages, the postverbal position, i.e. a position within the comment, represents the default focus position.

Focus on non-subjects is most naturally expressed without any formal marking, as a non-subject in basic order already occupies the default postverbal fo-

¹I would like to thank my main consultant, Roger Dhossou, for his patience during the research work on Aja and for sharing with me his affection for this language. Thanks go also to the students of the collège of Lalo who assisted for the sessions on QUIS, to the headmaster of their school as well as to the mayor of Lalo who provided me with a room for my work in his office.

cus position. Simple information questions are therefore mostly answered in this way, (1-b) and (2)², even though the question itself has to show a marked structure, as in (1-a), exemplifying the question-answer-asymmetry of the language.

- (1) a. nyì yí àvù ́ dó kò mē ð?
 what FM dog DEF have be.LOC neck in Q
 ‘WHAT does the dog have around his neck?’
- b. àvù lí dó èkā qèká dó kò mè.
 dog DEF have rope one be.LOC neck in
 ‘The dog has A ROPE around his neck.’
- (2) a. What did they carry?
 b. wó hèn àcí.
 3PL carry tree
 ‘They have carried A TREE.’

In the case of wide focus, i.e. focus on the verb phrase or the whole sentence, the focus remains often unmarked as well. Sentence focus is typically triggered in the following two contexts: event-reporting sentences (3) and presentational sentences (4) (cf. Lambrecht 1994: 307). Because of the lack of an argument that could act as topic in such statements, these sentences represent thetic statements without internal structuring into topic and comment. As can be seen, this strategy is applied to utterances with intransitive (4) as well as transitive verbs (3). This is in contrast to previous assumptions suggesting that “sentences with non-topical subjects strongly tend to be intransitive” (cf. Lambrecht 1994: 170).

- (3) a. Why is she angry?
 b. àsú ́ nū àhà mù.
 husband DEF drink alcohol get.drunk
 ‘HER HUSBAND IS DRUNK.’
- (4) a. What is going on in this scene?
 b. ɿsú qèká lē nyìnónó ...
 man one be.LOC ground.rest
 ‘THERE IS A MAN SITTING (and making a pause).’

The zero marking strategy can also be used for predicate-centered focus. This embraces incidences of state-of-affairs (focus on the lexical meaning of

²The following abbreviations are used: AFF – affirmative particle, CNJ – conjunction, DEF – definiteness, FM – focus marker, FUT – future, HAB – habitualis, LOC – locative, NEG – negation, Q – question marker, PL – plural, PROG – progressive, PRT – particle, RED – reduplication, SG – singular.

the verb, (5)) as well as occurrences of verbal operators targeting the tense, aspect and mood value of the predicate (6) or the polarity value (truth value focus, (7)) (cf. Güldemann 2009). Example (5) represents the answer to a yes/no-question about which of two possible actions, both expressed by serial verb constructions, the agent is doing. The actions are expressed by a verb ‘to take’ plus a second verb expressing the goal or the source of movement what is here pragmatically in focus.

- (5) a. Is he bringing or sending the table?
 b. á sòè dàdá.
 3SG.FUT take.3SG go.away
 ‘He is SENDING it.’

Example (6) is an instance of focus on the aspect/tense operator of the verbal action, indicating that the action involved is not yet fulfilled but will be done in the near future. Instances of truth value focus, example (7), are not necessarily marked in Aja either.

- (6) a. The woman has hit Kofi.
 b. óò, nyónù lí á xóì
 no, woman DEF FUT hit.3SG
 ‘No, she WILL hit him.’
- (7) a. When they finish the meeting, are all of the three people looking at their own watches?
 b. níñ, wó kó tòn lí kpó gámè.
 yes, 3PL all three DEF look watch.in
 ‘Yes, ALL THREE HAVE LOOKED AT THEIR WATCH.’

2.2 Syntactically marked focus

Syntactically marked focus in Aja involves the fronting of the focused element to sentence-initial position. Optionally, the focus marker *yí* can be attached to the focused element, although no additional semantic effects can be traced back. Even though this strategy received much attention in the literature on Gbe languages, focus movement is in no way preferred over other strategies of focus marking.

Non-subject focus is most often coded by the zero strategy, as demonstrated in 2.1. But it is also feasible to front the focused object, optionally followed by the focus marker *yí* and without resumption at its base position. This is often done in case of correction, like in (8), but also as answer to an alternative question, expressing an overt contrast between the two mentioned alternatives. But even as an answer to an information question, without much pressure from the

discourse-context, this structure is found. Adverbial and prepositional phrases might also be fronted for the purpose of focus, a strategy not available for the latter in Ewe (cf. Ameka 1992: 9f).

- (8) a. Did Maria buy a motorcycle?
 b. óò, kéké yí mārìà xwlè.
 no, bicycle FM Maria buy
 ‘No, Maria bought A BICYCLE.’

To express focus on the verb or on some verbal operator, Aja disposes about two different syntactic strategies. In the first one, the verb itself is fronted and in the second, it is the object of the verb which takes sentence-initial position. This structure is restricted to verbs with affected and inherent objects only.

When the verb is fronted, it leaves a copy in its canonical position. In Gbe languages, it is not possible to have a do-support instead, as for instance in Hausa. As was the case with non-subject focus, the pragmatic conditions which demand the use of this strategy cannot be clearly determined. It is applied in case of information focus and of correction, be it the lexical meaning of the verb (9) or a verbal operator (9) which is touched. The only object allowed to pied-pipe the fronted verb is the pronominal 3rd person singular object, when it refers to animate referents, as exemplified in (9) and (10), even though pragmatically only the verb or the verbal operator is in focus. With inanimate referents, however, this structure is ruled out.

- (9) a. The woman has hit Peter.
 b. yóè yí é yóè.
 call.3SG FM 3SG call.3SG
 ‘(She did not hit him,) she CALLED him.’
- (10) a. The woman has hit Peter.
 b. óò, xóì á xóì.
 no, hit.3SG 3SG.FUT hit.3SG
 ‘No, she WILL hit him.’

Concerning the categorical status of the fronted element, i.e. if it has to be analyzed as nominal or verbal, there was some discussion in the literature concerning different Gbe languages. For Fɔn, Ndayiragije (1993b: 180) argues for its verbal status because the copy does not show any sign of nominal morphology and is identical to the verb. Lefebvre and Rousseau (2002: 504ff), on the other hand, disagree and favour the nominal analysis. Aboh (2006: 24) describes the fronted verb in Gun as a bare non-finite form, which “is by no means a nominalised verb.”. This is the case in Aja, too. The verb appears in its bare form identical to the form in the sentence, without any accompanying

tense and aspect markers, and is not allowed to be determined, contrary to F_{ON}. If the verb is bisyllabic, the same observation as for F_{ON} holds true, i.e. only the first part or an exact copy of the verb appears sentence-initially (Fiedler 2012). Whether this can really be seen as nominal morphology is questionable, as reduplication, and not reduction, is a means for nominalisation.

In some environments in Aja it is not possible to front the verb in order to focus its lexical meaning. Rather, only the object is fronted and marked with the focus marker. This is the case in figura etymologica, as in (11) and when the lexical meaning of verbs with affected or inherent object is focussed. Example (12) presents such a verb, here ‘to drink’, with affected object. For focusing the verb phrase, it is possible to front only the verb or to front the object ‘water’. The latter construction results in an ambiguity between two readings: first, only the object is to be interpreted as pragmatically focused, thus contrasting water with other drinkable liquids, or second, the whole verb phrase is focused, contrasting the ‘drinking of water’ with ‘eating sth.’.

- (11) a. Did he win or lose the game?
 b. èjí yí é qù.
 top FM 3SG eat
 ‘He WON.’
- (12) a. They ate the beans.
 b. èshí yí wó nù.
 water FM 3PL drink
 ‘(They did not eat the beans, but) they DRANK WATER.’

2.3 Morphological marking

Both focus marking strategies presented so far can be combined with different kinds of morphological markers that show some kind of complementary distribution: The “pure” focus marker *yí* can attach to all types of constituents in the clause provided they are placed clause-initially. Placing it after an object constituent in its canonical sentence position renders the sentence ungrammatical. Besides the focus marker *yí*, Aja possesses other particles which are used to strengthen the affirmation and which are placed in sentence-final position. Some of them can be related to former demonstrative elements, like *nɛ*, for others, like *á*, no relation to another part of the utterance can be drawn.

At first glance, focus on the subject seems to be expressed by morphological means only. The focus marker *yí* is obligatorily inserted directly after the subject phrase in a sentence with canonical word order (13). Furthermore, there is no pronominal resumption of the subject.

- (13) a. In investigating the person who stole a watch
 b. nyónùví ló yí fi wéci ló.
 girl DEF FM steal watch DEF
 ‘The GIRL has stolen the watch.’

Whether subject focus constructions in Aja reflect pure morphological marking or a special syntactic configuration is treated differently for other Gbe languages. Ameka (1992: 8) analyses all focus constructions in Ewe as involving fronting, but not as clefts. Aboh (1998) for Gun and Ndayiragije (1993a,b) for Fɔn both favour an analysis according to which the focussed element (including the subject) is moved to the left of the respective focus marker (cf. Aboh 1998: 10ff). Schwarz and Fiedler (2007) come to another conclusion for Ewe, due to the difference between subject and non-subject focus, and assume that subject focus cannot be analysed as extra-clausal in that language. For Aja, there are prosodic hints favouring the hypothesis that the subject focus strategy in Aja is purely morphological, but this is still an open question.

The same construction as just described, i.e. marking the subject with the focus marker *yí*, can be employed for event-reporting utterances, as in (14), but is not attested for identificational sentences or scene-setting devices. This isomorphism between subject focus and sentence focus was already described for a number of West African languages (Fiedler et al. 2010). In both cases, the subject fails to represent the topic of the utterance, i.e. the sentence represents a thetic judgment.

- (14) a. After having watched a film: What happened?
 b. kòkpū yí jún só jì yí gbán nó ŋ.
 glass FM fall come top CNJ break for 1SG
 ‘THE GLASS IS BROKEN FOR ME.’

Predicate-centered focus of different kinds can also be expressed morphologically, besides zero-marking or fronting. Either the particle *yɔ* for focus on the lexical meaning of the verb (15), and tense-aspect-mood operator focus (16), or affirmative particles for truth value focus (17), are employed in sentence-final position. Even though these particles mark the whole utterance, their scope is only on part of the predication. In these contexts, the use of the focus marker is not allowed, rendering the sentence ungrammatical, which contrasts with other Gbe languages like Fɔn.

- (15) a. Did he win or lose the game?
 b. é qù jí yó.
 3SG eat top PRT
 ‘HE WON.’

- (16) a. The woman has hit Peter.
 b. óò, á xóí yó.
 no, 3SG.FUT hit.3SG PRT
 ‘No, she WILL HIT him.’
- (17) a. He limped (, didn’t he)?
 b. èèn, é tón bú nè / là.
 yes, 3SG limp limping AFF
 ‘Yes, HE DID LIMP.’

Even though the use of the argument focus marker is not tolerated in Aja in sentence-final position, as in Føn, there is a phonetic similarity between both, focus marker *yí* and particle *yɔŋ*, which was already observed by Tchitchi (1984). In elliptical focus utterances, which reduce the answer to the missed information only, *yí* is also not possible. Either the focussed element constitutes the only part of the sentence or it is followed by *yɔŋ*, giving the structure as displayed by (18-b). As illustrated in (19), the same structure is found in monadic nominal utterances.

- (18) a. In investigating the person who stole a watch
 b. ñsū ló yó/*yí.
 man DEF PRT
 ‘It was the MAN.’
- (19) a. What’s that?
 b. wèmá yó/*yí.
 book PRT
 ‘It’s a book.’

The affirmative particle *nè* in example (18) as well as the particle *ké* which is not exemplified here, are grammaticalised out of demonstratives. The first one goes back to a long distance demonstrative which is still in use as such in Føn but not in Aja, and the second one to a short distance demonstrative. In their use as affirmative particles this deictic value is not reflected anymore (cf. Fiedler 1998 for a more detailed description of these particles). Concerning the other particle present in example (18), *là*, no grammaticalisation path can be proposed for the moment.

Phrases being in the scope of focus-sensitive particles like ‘even’ and ‘only’ present another kind of morphological focus marking. This is best exemplified for the additive particle ‘also’ with its Aja correspondences *cán* and *hènnè*, (20)–(21) as well as for the restrictive particle ‘only’. The two equivalents of ‘also’ in Aja are in complementary distribution with respect to their positional realization in the sentence. Whereas *cán* is restricted to sentence-initial constituents (20), *hènnè* can be found in all other environments (21) and in

combination with the former.

- (20) a. The woman ate the beans.
 b. nyónùví lí cán hènnè qū àyú.
 girl DEF also eat bean
 ‘THE GIRL ate the beans, too.’
- (21) a. The woman ate the oranges.
 b. é qū àyú-wó hènnè.
 3SG eat bean-PL also
 ‘She ate THE BEANS too.’

Restrictive focus can also be expressed by more than one morpheme. Arguments in sentence-initial position (subject, object, verb copy) are marked by *qèke* and can be followed by the focus marker *yí*, cf. example (22) for focus on the subject.

- (22) a. The girl and the woman bought the beans.
 b. óò, nyónùví lí qéké yí xwlè ayú-wó.
 no, girl DEF only FM buy bean-PL
 ‘No, only THE GIRL bought the beans.’

When the verb or another sentence-final element (e.g. the object) is affected, the meaning of restriction is expressed by another particle, *kpónj*, see example (23).

- (23) a. The woman pushed and hit Peter.
 b. óò, é cùicùi dàdá kpónj.
 no, 3SG push.3SG.RED go.away only
 ‘No, he only PUSHED him.’

It becomes clear that *cán* ‘also’ and *qèke* ‘only’ are subject to the same restriction in the clause, namely to attach to the sentence-initial element only. However, they behave differently with respect to the combination with the additional focus marker *yí*. Only the sentence-initial noun followed by the restrictive particle is allowed to be further marked with the focus marker. A similar observation was made by Hartmann and Zimmermann (2007: 252) for Hausa who therefore conclude that the assumed focus marker *nee/cee* should be better analysed as an exhaustivity marker.

3 Summary

The above analysis revealed that the formal realization of focus in Aja involves a number of different strategies, which, next to morphological and syntactic

types of marking, may even involve no formal marking at all. However, no principles governing the choice of one strategy over the others can be detected from the previous analysis. Nearly each formal focusing device can be used to focus on each part of the sentence, and focusing of nearly each part of the sentence occurs with each construction. A prominent exception to this generalisation is provided in cases of subject focus. Aja only allows to focus the subject of a sentence by marking it with the focus marker in its canonical position. We find therefore a strong asymmetry between focusing of subjects and non-subjects, in that the language has at its disposal only one focus strategy to focus subjects, but three different strategies, i.e. the zero, the morphological and the syntactic strategy, to focus non-subjects. The most naturally used strategy is the one involving the default topic-comment structure. It seems to be a question of cost-benefit calculation whether the remaining strategies are used.

Because of the ability to use the same construction to express focus on different sentence parts, we find in the language cases of formal ambiguity, above all in case of the canonical sentence structure without any further markings. First, this structure represents categorical as well as thetic statements. Second, in categorical statements, the default focus position is identical to the object position, the object therefore being in focus by default. And third, predicate-centered focus has also not to be marked. This ambiguity is not surprising, and can be found in many languages.

Another ambiguity is that between focus on subjects and sentence focus, both expressed by adding the focus marker to the subject. As this marking serves to indicate that the subject does not fulfill its prototypical topic function, this structure can be applied in both cases, only the context resolving the ambiguity. This again is not unique for Aja or Gbe as a whole, as shown in Fiedler et al. (2010).

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Bite one's thumb and turn one's nose: A minimal pair of focus assignment in *Romeo and Juliet*

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1 A natural experiment

There are various types of linguistic evidence, in particular observing of how people talk, write, or sign in their regular communicative behavior, and observing how they do this in carefully designed experiments. The latter has the advantage that one can cleverly construct the experimental situation so that one's research question can be answered with a minimal amount of effort. It has the disadvantage, however, that the experiment often asks people to do something quite unnatural, especially in experiments that ask for their linguistic judgments.

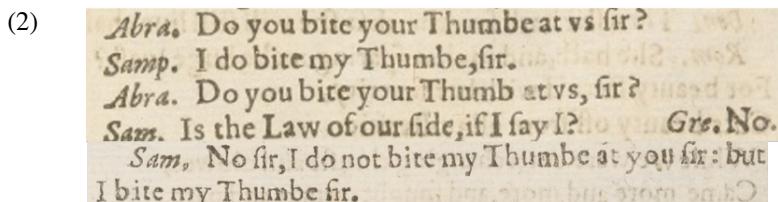
But every once in a while, there occurs what one could call a "natural experiment": A situation that happens to be as if a clever experimenter had constructed it so that it bears on a particular research question. In this short paper I will discuss such a serendipitous situation, one that even can be checked across dozens of languages. It occurs in Shakespeare's "*Romeo and Juliet*", and it speaks to the way how focus in human languages is realized.¹

The natural experiment can be found in Act 1, Scene 1, lines 54 to 61, where the servants of the house of Capulet, Sampson and Gregory, get into an argument with the servants of the house of Montague, Abraham and Balthasar. The former discuss how they should deal with the approaching Montague servants. There is a strict order in Verona not to start one of these notorious fights, and so it is important that the other side can be blamed with any incriminating actions.

¹This topic will hopefully remind Katharina of her time at the CRC (SFB) 632, "Information structure: The linguistic means for structuring utterances, sentences and texts" that ran from 2003 to 2015. I hope that this is an appropriate birthday gift for her.

- (1) 1 **SAMPSON** Let us take the law of our sides; let them begin.
 2 **GREGORY** I will frown as I pass by, and let them take it . . .
 as they list
 3 **SAMPSON** Nay, as they dare. I will bite my thumb at them;
 which is a disgrace to them, if they bear it.
 4 *Enter ABRAHAM and BALTHASAR*
 5 **ABRAHAM** Do you bite your thumb at us, sir?
 6 **SAMPSON** I do bite my thumb, sir.
 7 **ABRAHAM** Do you bite your thumb at us, sir?
 8 **SAMPSON** [Aside to GREGORY] Is the law of our side,
 if I say ay?
 9 **GREGORY** No.
 10 **SAMPSON** No, sir, I do not bite my thumb at you, sir,
 but I bite my thumb, sir.

This is how the central passage is rendered in the Bodleian First Folio.²



Sampson wants to insult the Montague servants by biting his thumb in order to provoke them to some aggressive action. What did this gesture mean? The site myshakespeare.com explains it as follows³: “To bite your thumb at someone was to flick your thumb from behind your upper teeth. It was an obscene gesture similar to giving someone the finger”. According to the Folger Shakespeare Library⁴, the gesture is still known in Sicily but was foreign to Elizabethan English, which explains why Shakespeare felt the pressure to explain it explicitly in Line 3: “which is a disgrace to them”. The gesture might have added some exotic Italian color to the action. Also, being foreign to England, it might have had the advantage that it did not provoke censorship by the London authorities.

Now, there is an important semantic difference between the two-argument, or transitive, structure ‘x bites x’s thumb’ and the three-argument, or ditransi-

²<https://firstfolio.bodleian.ox.ac.uk/>

³<https://myshakespeare.com/romeo-and-juliet/act-1-scene-1-popup-note-index-item-bite-m-y-thumb-them>

⁴<https://www.folger.edu/blogs/shakespeare-and-beyond/excerpt-how-to-behave-badly-in-elizabethan-england-by-ruth-goodman/>

tive, structure ‘x bites x’s thumb at y’. The first is an innocent, even childish act; the second one was considered an insult. In Line 5, Abraham activates the insulting interpretation; in Line 6, Sampson activates the innocent interpretation, and in Line 10, Sampson juxtaposes the two readings against each other. Notice that the insulting meaning truth-conditionally entails the innocent meaning: Whenever x insults y by biting x’s thumb, x also bites x’s thumb (but not necessarily vice versa).

2 Prosodic differentiation in English

Lines 5/6, and Line 10, present two instances of an interesting minimal pair between the transitive and ditransitive use of to bite one’s thumb. But I want to focus on the even more interesting minimal pair presented by lines 5 and 7:

- (3) **5 ABRAHAM** Do you bite your thumb at us, sir?
 7 ABRAHAM Do you bite your thumb at us, sir?

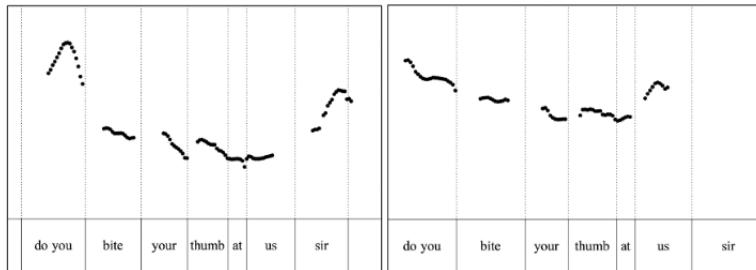
But is this a minimal pair at all? The two lines are string-identical! Yet a casual listening to several performances of the play, as made available by Youtube, reveals that actors produce the two lines regularly with different intonation patterns. They are generally consistent with the following focus assignment and accent structure:⁵

- (4) **5 ABRAHAM** [DO you bite your THUMB at us]_F, SIR?
 7 ABRAHAM Do you bite your thumb [at US]_F, sir?

For example, in the performance of the scene in the 1936 Hollywood production by American director George Cukor we have the following prosody. (The last word sir in Line 7 was deaccented and did not leave any F0 trace in PRAAT, which may be due to the quality of the sound.)

⁵Cf. Emporia State University, https://www.youtube.com/watch?v=juSn_IAnwNc, New York SA,
<https://www.youtube.com/watch?v=1bIgRoIcMRU>,
 The King’s Academy, <https://www.youtube.com/watch?v=FkrIcmXvv18>,
 and in particular the collection https://www.youtube.com/watch?v=D9D_4A7yYzc.

- (5) Pitch track of Line 5 and Line 7, 100 Hz to 400 Hz, logarithmic



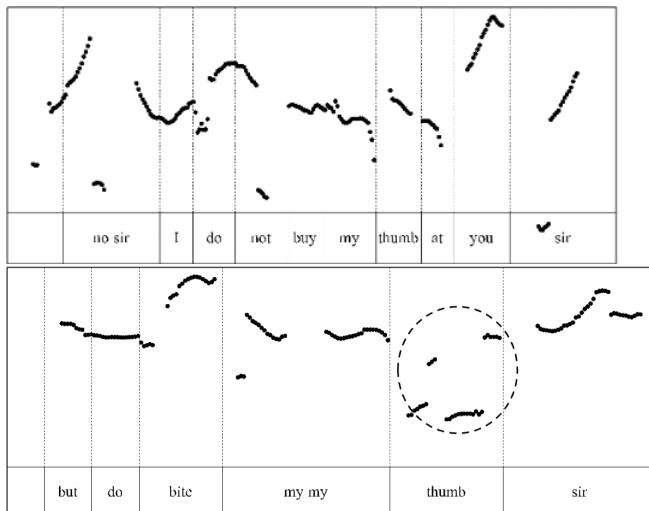
Line 5

Line 7

Clearly, the prosody on *at us* in Line 5 is level, but rising in Line 7. This is consistent with narrow focus on *at us* in Line 7 and broad focus in Line 5, where the pronominal DP *at us* is deaccented (cf. Féry 2017).

Let us look at the second instance of the other minimal pair in Line 10, which are assertions that correspond to the questions in Line 5 and Line 7.

- (6) Line 10



The second clause is not very clear, as there is laughter in the background about the joke of Sampson. But accent on *thumb* is clearly falling in the first clause and rising in the second. This is consistent with the following focus structure, with narrow focus on *at you* in the first case, and broad focus on *bite my thumb*.

- (7) I do not bite my thumb [at YOU]_F, sir, but do [bite my THUMB]_F sir.

Alternatively, we may analyze this minimal pair as a contrast between the ditransitive and the transitive use of ‘bite my thumb’, with broad focus on the VP. This can be realized as in (8), with final accent on *at you*.

- (8) I do not [bite my thumb at YOU]_F, sir, but do [bite my THUMB]_F, sir.

The performances I could access via Youtube typically show the pattern (8). One exception is the 1976 production by Canadian director Alvin Rakoff, where the first clause of Line 10 is completely deaccented, with accent on *sir*; this is possible because the VP *bite my thumb at you* was mentioned in Line 5 and 7, and hence can be treated as given.

3 Translation into German

“Romeo et Juliet” must have been translated into dozens, if not hundreds of languages. And this makes the natural minimal pairs at the beginning of this drama even more interesting because we can investigate them cross-linguistically. In particular, what we know about the realization of focus in different languages raises the expectation that the prosodic minimal pair of Lines 5 and 7 result in different syntactic structures, as good translators should be sensitive to the situational meanings of these expressions and apply the resources of their respective languages.

In this section we will look at a few German translations. The best-known one is by August Wilhelm Schlegel⁶ from 1797. It is a bit disappointing, except perhaps by the translation of the gesture by *einen Esel bohren*, ‘to bore a donkey’, a gesture used at the time which mimics the ears of a donkey by a poking gesture with the index finger and the little finger spread out.⁷ But there is no distinction between Lines 5 and 7:

- (9)
- | | |
|------------------|---|
| 5 ABRAHAM | Bohrt Ihr uns einen Esel, mein Herr? |
| 6 SIMSON | Ich bohre einen Esel. |
| 7 ABRAHAM | Bohrt Ihr uns einen Esel, mein Herr? |
| ... | |
| 10 SIMSON | Nein, mein Herr. Ich bohre Euch keinen Esel,
mein Herr. Aber ich bohre einen Esel. |

The earlier rendering by Christoph Martin Wieland⁸ of 1766 translates both Lines 5 and 7 closer to the original, but again without any difference between

⁶https://books.google.de/books?id=jWoHAAAAQAAJ&pg=PP15&redir_esc=y#v=onepage_gesetq&f=false

⁷<https://idiome.de-academic.com/681/Esel>

⁸https://de.wikisource.org/wiki/Romeo_und_Juliette

Lines 5 and 7. But the use of the particle *doch* in Line 10 can be seen as allowing for a focus position of *meinen Daumen*, cf. Diesing (1992) for the position of discourse particles relative to focus in German.

- (10) 5 **ABRAHAM** Beißt ihr euren Daumen gegen uns, Herr?
 6 **SAMPSON** Ich beiße meinen Daumen.
 7 **ABRAHAM** Beißt ihr euren Daumen gegen uns, Herr?
 ...
 10 **SAMPSON** *laut* Nein, Herr, ich beisse meinen Daumen
 nicht gegen euch Herr. Aber ich beisse doch
 meinen Daumen, Herr.

The translation of Heinrich Voß⁹ of 1818 is the first one that renders Line 5 and Line 7 in slightly different ways:

- (11) 5 **ABRAHAM** Beißt ihr euren Daum gegen uns, Herr?
 6 **SAMSON** Ich beiße den Daum, Herr.
 7 **ABRAHAM** Beißt ihr den Daum gegen uns, Herr?

In Line 5 the object is given as possessive, *euren Daum*, and in Lines 6 and 7 as definite, *den Daum*. This definite nominal is more readily prosodically integrated with the verb, hence it allows more easily for a focus on *gegen uns* ‘against you’ (cf. Jacobs 1993).

The translation by Wilhelm Otto Benda¹⁰ of 1825 indicates focus typographically by spacing the letters, which was a common highlighting device at the time. It translates *bite one's thumb* as *ein Schnippchen schlagen*, which actually does not denote a gesture but rather ‘getting the upper hand over someone’.

- (12) 5 **ABRAHAM** Schlagt ihr uns ein Schnippchen, Herr?
 6 **SIMSON** Ich schlage ein Schnippchen.
 7 **ABRAHAM** Schlagt ihr u n s ein Schnippchen?

Ernst Orlepp¹¹ in 1839 translates Lines 5/7 in the same way but offers a new translation of the gesture, *ihr reckt die Hände vor uns über die Ohren empor, mein Herr?* ‘you stretch your hands above the ears in front of us, sir’. It also uses spacing to highlight *vor uns* in Line 10. Friedrich Bodenstedt in 1868 translates the gesture as *Schneidet Ihr uns ein Gesicht, Herr?* ‘do you make a face at us, sir’, but does not vary between Line 5 and 7.

⁹<https://archive.org/details/shakespearesromeo00shak/page/7/mode/1up>.

Heinrich Voß was the son of Johann Heinrich Voß, the translator of Homer's Iliad and Odyssey

¹⁰<https://books.google.com/books?id=7mYoAAAAYAAJ&pg=PA1>

¹¹https://books.google.de/books?id=o7AXAAAAYAAJ&pg=PA59&redir_esc=y#v=onepage&q&f=false

The last translation I would like to discuss is by Erich Fried, well-known for his love lyrics. It was first published in 1974. Fried does not only find an excellent translation for the obscure gesture – *eine Nase drehen* ‘turn a nose’, a childish mocking gesture which is outdated but still known in the German-speaking world. He also translates Lines 5/7 differently:

- (13) 5 **ABRAHAM** Dreht Ihr uns eine Nase, Herr?
 6 **SAMPSON** Ich drehe eine Nase.
 7 **ABRAHAM** Dreht Ihr eine Nase uns, Herr?
 ...
 10 **SAMPSON** Nein, Herr. Ich drehe die Nase nicht Euch,
 Herr. Aber ich drehe eine Nase.

In Line 7, the pronoun *uns* ‘to us’ is right-dislocated into a clause-final focus position, followed by the vocative phrase *Herr*. Clearly, *uns* has to be stressed, and its position facilitates that. Such right dislocations for the purpose of focussation are unusual in modern German but are reported from somewhat earlier stages, cf. Bies (1996). We find a similar clause-final position of *nicht Euch* in Line 10, where the negation particle *nicht* is in a position to focus the object *Euch* (cf. Jacobs 1982). This focussation is supported by the change of *eine Nase* to the definite *die Nase*, which results in scrambling of this expression. As a result, *nicht Euch* ends up in a clause-final position allowing for narrow focus (cf. Krifka 1998).

4 Translation into other languages

We have seen that some German translations capture the different information structure of Lines 5 and 7. Let us have a look at some translations in other languages.

Dag Haug provided me with three Norwegian translations that also have different versions of the gesture (beyond the Shakespearean *bite seg i tommen* ‘bite oneself in the thumb’ we find *smelle fingrom* ‘beat the finger’ and *rekke tunga* ‘stick out the tongue’). The translations generally do not show variations between Line 5 and Line 7, but the following one by Andre Bjerke (1970) uses italics as a typographic highlighting device.

- (14) 5 **ABRAHAM** Min herre, rekker De tunga til oss?
 6 **SAMSON** Jeg rekker tunga, min herre.
 7 **ABRAHAM** Min herre, rekker De tunga *til oss*?

The Dutch translation of 1897 by L. A. J. Burgersdijk applies the same strategy that we saw with Erich Fried: the narrow focus of Line 7 is marked by placing the adversative argument, here the PP *tegen ons* ‘against us’, in a final

focus position, presumably by scrambling *op je duim* from its original preverbal location. Also, we find the same placement of focusing negation in Line 10.

- (15) 5 **ABRAHAM** Bijt je tegen ons op je duim, kerel?
 6 **SAMSON** Ik bijt op me duim, kerel.
 7 **ABRAHAM** Bijt je op je duim tegen ons, kerel?
 ...
 10 **SAMSON** Neen, kerel, ik bijt op me duim niet tegen jou;
 maar ik bijt op me duim, kerel.

Moving to Romance languages, we should assume the use of syntactic devices like cleft constructions to mark narrow focus (cf. Zubizarreta 1998, Lambrecht 2001). Consider the following French translation by M. Guizot from 1864.

- (16) 5 **ABRAHAM** Est-ce à notre intention, monsieur, que vous mordez votre pouce?
 6 **SAMSON** Je mords mon pouce, monsieur.
 7 **ABRAHAM** Est-ce à notre intention, monsieur, que vous mordez votre pouce?
 ...
 10 **SAMSON** Non, monsieur, ce n'est pas à votre intention que je mords mon pouce; mais je mords mon pouce, monsieur.

The translation uses a cleft construction, but surprisingly the sentence is rendered as ‘Was it your intention that you bit your thumb’. The same form is also used in the assertion, Line 10. Hence this translation is irrelevant for our purpose as it is too far from the original.

Let us check a Spanish translation (from Luarna Ediciones). It translates the gesture fairly generically by *hacer burla* ‘make fun of’, but it introduces a distinction between Lines 5 and 7.

- (17) 5 **ABRAHAM** ¿Nos hacéis burla, señor?
 6 **SAMSON** Hago burla.
 7 **ABRAHAM** ¿Nos hacéis burla a nosotros, señor?
 ...
 10 **SAMSON** No, señor, no os hago burla. Pero hago burla, señor.

The questions are distinguished insofar as in Line 5, ‘to us’ is expressed by a clitic *nos*, whereas in Line 7, it is expressed also by a full pronoun, *a nosotros*. This is required under the analysis proposed in (7), as clitics cannot be stressed, and hence cannot carry focus. Following this line of argumenta-

tion, there is no narrow focus on ‘to us’ in the first sentence of Line 10 either, contrary to the structure proposed in (7) but consistent with the structure in (8).

Closer to home where *Romeo and Juliet* actually takes place, we find that the following Italian translation by Goffredo Raponi (thanks to Carlotta Viti for assistance):

- (18) **5 ABRAMO** Per noi ti mordi il pollice, compare?
6 SANSONE Io sì, mi mordo il pollice.
7 ABRAMO Ti sto chiedendo s’è verso di noi
che te lo mordi. Rispondimi a tono.
...
10 SANSONE No, compare. Se mi mordo il pollice,
non è per voi. Però mi mordo il pollice.

Lines 5 and 7 are clearly distinguished: Line 7 use a cleft construction *è verso di noi* ‘it is to us’, which is consistent with the assumption that it is in focus; it also is more embellished than *per noi* in Line 5. Interestingly, the sentence is introduced by *ti sto chiedendo* ‘I am asking you’, which might be due to the fact that Italian has no syntactic marking of questions, and the prosodic question marking may conflict with the cleft construction. The first assertion in Line 10 is compatible with the analysis of narrow focus in (7), but expresses this quite differently; it is literally ‘if I bite my thumb, it is not for you’.

Let us consider a Slavic language. I thank Hana Filip for looking up the following Czech translations, one by Josef Václav Sládek from 1900, the other by Jiří Josek from 1985. Only the latter one distinguishes between Line 5 and Line 7.

- (19) **5 ABRAHAM** To jste si odpliv před náma, pane?
be.2SG REFL spit in.front us mister
6 SAMSON Odpliv jsem si.
spit be.1SG REFL
7 ABRAHAM Odplivl jste si před náma, pane?
spit.PST be.2SG REFL in.front us mister
...
10 SAMSON Ne, pane. Neodplivl jsem si před váma,
no mister NEG.spit.PST be.1SG REFL in.front you
pane nýbrž odplivl jsem si, pane?
mister but spit.PST be.1SG REFL mister

The main verb *odplivl* ‘spitted’ is fronted in Line 7. Hana Filip reports the impression that this puts the finite verb in focus. One possibility is that this marks verum focus. This is not the focus proposed in (7), which would be on *před náma* ‘in front of us’. Verum focus might also be the case in the second

clause of Line 10.

Beata Gyuris provided me with an Hungarian translation, by Károly Szász (1871). We can observe here a difference that makes use of the Hungarian focus position.

- (20) **5 ÁBRAHÁM** Figét mutat kend, koma?
 fig.ACC show.3SG you(HON) mate
- 6 SÁMSON** Figét mutatok, koma.
 fig.ACC show.2SG mate
- 7 ÁBRAHÁM** Nekünk mutat kend figét, koma?
 we.DAT show.3SG you(HON) fig.ACC mate
- ...
 10 SÁMSON Nem, koma, nem kendteknek mutatok figét,
 no mate not you(HON).DAT show.1SG fig.ACC
 csak figét mutatok, koma.
 only fig.ACC show.1SG mate

Line 5 and Line 7 differ insofar only Line 7 contains the dative object, *nekiink* ‘to us’, which is also in the focus position, supporting analysis (7). Similarly, only the first clause in Line 10 contains the dative object, also in focus position there.

Kazuko Yatsushiro found several Japanese translations that handle the minimal pairs in various ways, often quite far removed from the text. One example is the following:

- (21) **5 ABR.** Kochira-ni mukatte yubi-o kam-are-ru-no-ka?
 this.direction-DAT toward finger-ACC bite-HON-NPAS-NMLZ-Q
 ‘(you) are biting your finger toward me?’
- 7 ABR.** Yubi-o kande-iru-no-wa kochira-ni mukete-na-no-ka?
 finger-ACC bite-PROG-NMLZ-TOP this.direction-to toward.COP-NMLZ-Q
 ‘Is it toward us that you are biting your fingers?’

In Line 7, *kochira-ni mukete* ‘to this direction’, which corresponds to ‘to us’, is marked as focus by a cleft construction; the non-focused parts are rendered as a topic, which requires nominalization.

The Vietnamese translation that Tue Trinh obtained for me does not make a clear distinction between Line 5 and Line 7, except that Line 7 takes up the more explicit form ‘spit saliva’ vs. ‘spit’. It is unclear by which mechanism this allows to highlight *vào chung-tôi* ‘at us’.

- (22) **5 ABR.** Quý-ông nhồ vào chung-tôi đây phải-không?
 the-gentleman spit at us there right
6 SAM. Vâng, đúng là tôi nhồ nước-bọt đấy, thưa quý-ông.
 yes correct that I spit saliva there my gentleman
7 ABR. Quý-ông nhồ nước-bọt vào chung-tôi phải-không?
 the-gentleman spit saliva at us right
 ...
10 SAM. Không, tôi không nhồ vào quý-ông.
 no I not spit at the-gentleman
 Nhưng đúng là tôi nhồ đấy.
 but correct that I spit there

One language that should be particularly interesting to consider is Turkish because of its explicit focus marking in questions (cf. Kamali and Krifka 2020). In this language, polar questions are marked by a clitic *-mI* that exhibits vowel harmony; it occurs in a sentence-final position or is attached to subconstituents of the question that are in focus. Thanks to my colleague Beste Kamali, who provided me with two translations.

- (23) **5 ABR.** Başparmağını bize mi ısıriyorsun efendi?
 thumb.your.ACC to.us Q bite.2SG master
6 SAM. Isırıyorum başparmağımı efendi.
 bite.1SG thumb.my.ACC master
7 ABR. Başparmağını bize mi ısıriyorsun efendi?

 (24) **5 ABR.** Hey bana baksana! Başparmağını bize mi ısıriyorsun?
 hey to.me look thumb.your.ACC to.us Q bite.2SG
6 SAM. Evet, başparmağımı ısıyıyorum.
 yes thumb.my.ACC bite.1SG
7 ABR. Peki, bize mi ısıriyorsun başparmağını?
 alright to.us Q bite.2SG thumb.your
 ...
10 SAM. Hayır, size ısırmıyorum başparmağımı.
 no to.you bite.NEG.1SG thumb.my
 Ama başparmağımı da ısıyıyorum.
 but thumb.my.ACC too bite.2SG

We find focus marking by the polar question particle *mI* on *bize* ‘to us’ in both Line 5 and Line 7. This corresponds to the narrow-focus analysis proposed in (7) for Line 7, but seems to be at odds with the assumption of broad focus marking for Line 5. However, focus marking on an argument can also project to larger constituents, as shown in Kamali (2015). Hence, focus marking on *bize*

is also compatible with broad focus marking. But notice that the translator in (24) extraposes *başparmağımı* ‘my thumb’ in Line 7, which is possible as it is a ‘given’ constituent at this point. By this move, the direct object *başparmağımı* cannot be part of the focus anymore, different from Line 5. This is consistent with the idea that focus in Line 7 is more narrow than in Line 5.

Line 10 in (24) also supports an analysis of different foci. In the first sentence, *başparmağımı* is again extraposed, hence focus is restricted, most plausibly to ‘to you’. This contrasts with the second sentence, where *başparmağımı* is not extraposed, even though it is given. This makes it possible to integrate it into the focus domain. This can be seen as supporting analysis (8).

5 Conclusion

When asking for the relevance of *Romeo and Juliet* for linguistics, people would probably come up with Romeo’s line “What’s in a name? That which we call a rose / By any other name would smell as sweet”, which reveals, perhaps surprisingly, an anti-iconic view of language. This small article points out that there are other linguistic gems in this masterpiece. It would be worthwhile to hunt for other translations of this little passage, and perhaps for similar close variants in other literary texts.

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Topicalization and prosodic phrasing in Akan

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1 Introduction

Information structure categories such ‘topic’ or ‘focus’ are conceived of as cognitive categories and they interact with linguistic structure and linguistic categories in such a way that natural languages express these cognitive categories using language-specific linguistic means (e.g., Zimmermann and Onea 2011, Zimmermann and Féry 2010).¹ Syntactic, morphological and phonological means may be used exclusively, or, as in many languages, a combination thereof expresses a particular information structure. This paper deals with the prosody of topicalization in Akan, a two-tone Kwa language spoken in Ghana.

According to the literature, Akan makes use of a rich inventory of morphological markers to indicate information structure (Amfo 2010). This morphological marking is accompanied by certain syntactic topic constructions which descriptively can be labelled as left-dislocated. This paper discusses the role of prosody in the expression of topics in Akan, and how prosody adds to the morpho-syntactic expression of topics. The conclusion of this study is that topics are phrased within a separate prosodic phrase. This phrasing is marked by an obligatory pause after the topic constituent and the interruption of the downstep pattern within an utterance.

The data in this paper come from the SFB 632 “Information Structure” in Potsdam/Berlin, where Katharina and I each led projects on the linguistic expression of information structure. The occasion of this *Festschrift* is a wonderful opportunity to reminisce about the common time in Potsdam/Berlin and

¹The recording of this data set was funded by the DFG, SFB 632 “Information structure”, project D5. The data was collected in 2014 by Rike Schlüter, for which I express my sincere gratitude. Additional thanks go to Susanne Genzel for detailed discussions about Akan and about the design of the current data set. I extend my thanks to Lisa Baudisch, Alwine Hellmeier, and Alina Gregori for their support in data transcription. Special thanks to Kofi Dorvlo and Reggie Duah for being gracious hosts in Accra. Finally, my gratitude goes to Kwasi Adomako, who reviewed the lexical tone patterns in the data.

to add another piece of the puzzle to our understanding of the linguistic expression of information structure and in particular the role of prosody with this small, previously unpublished data set. It adds to Katharina's work on the expression of focus in West-African languages (e.g., Hartmann and Zimmermann 2007a,b, 2009), now focusing on topics.

2 Background

2.1 Akan

Akan is a Kwa language belonging to the Niger-Congo phylum spoken in the central and southern regions of Ghana by about 8.3 million speakers (Lewis 2009). The data for this paper come from native speakers of Asante Twi, which is one of the major dialects of Akan spoken in Ghana. The many dialects of Akan are more or less mutually intelligible, but differ at the level of segments as well as tones (Dolphyne 1988, Dolphyne and Kropp Dakubu 1988, Abakah 2000, 2005a, Schachter and Fromkin 1968). Akan is used as a cover term throughout the paper.

The tone system of Akan is relatively well-studied (Stewart 1965, Schachter and Fromkin 1968, Clements 1983, Dolphyne 1988, Abakah 2005b, 2010a,b, Paster 2010, Kügler 2016b), and a number of studies on the interaction of tone and information structure provide the basis for the current study (Marfo 2005, Genzel and Kügler 2010, Kügler and Genzel 2012, Genzel 2013).

Akan is an SVO language (Saah 1994), illustrated in (1). In the example, it can also be seen that NPs are right-branching with a strict order of post-nominal modifiers Boadi (2005).

- (1) kòfí dí kòtò kàkó: bëbré:
 Kofi eat.PRS crab red many
 ‘Kofi eats many red crabs.’ (example from Kügler 2015: 194)

Left-dislocated structures represent deviations from simple SVO word order. For instance, a topic or focus constituent in Akan is fronted to the sentence-initial position, thus dislocated from its base position (e.g., Boadi 1974, Marfo 2005, Ermisch 2006). The example in (2) shows a topicalized subject followed by the topic marker *de*. If a constituent is topicalized, an obligatory resumptive pronoun appears in the matrix clause.

- (2) Ama de o baa ha
 Ama TOP 3SG.SUBJ came here
 ‘As for Ama, she came here.’
 (example in orthography, from Saah 1992: 237)

2.2 Tone and prosody in Akan

The two lexical tones of Akan contrast between High (H) and Low (L) tones. From a sentence perspective, the regular tonal pattern of an utterance is descending with local tones interacting resulting in a regular downstep pattern (Christaller 1875, Dolphyne 1988, Kügler 2016b). Sentence length has been shown to affect the local tonal scaling and the overall realization of the intonation of an utterance (Genzel 2013). The longer an utterance, the higher speakers start in their pitch range. The descending pattern of many West-African languages has led to a classification as a ‘terrace-level’ tone language (Welmers 1959).

In complex sentences with embedded structures, the embedded clause is prosodically integrated in an overall descending intonation pattern showing pitch reset at the left edge of the second clause (Kügler 2016a). A similar pitch reset pattern can be expected after left-dislocated structures, as studied in this paper, assuming that a topic clause and a matrix clause form complex clause.

2.3 Topic constructions in Akan

A ‘topic’ is typically identified as the part of an utterance about which the remaining part conveys information (Krifka 2008). The expression of topics varies across languages and even within a language, i.e. speakers may have different ways of expressing a topic at their disposal. In Akan, three distinct types of topic constructions have been identified (Christaller 1875, Boadi 1974, Saah 1994, Ameka 1992, Ermisch 2006), all of which realize the topic constituent in sentence-initial position and with an obligatory resumptive pronoun appearing in the matrix clause. Two topic constructions involve a morphological marker, either *de* or *no*. The third construction has no additional morphological topic marker.

Example (2) above illustrates a topic construction with the topic marker *de*. The example in (3) illustrates a construction with the topic marker *no*, which on the surface is realized identical as example (2).

- (3) Onipa no ɔ-m-mae
 man TOP 3SG-NEG-come.PST
 ‘That man, he has not yet come.’
 (example in orthography, from Ermisch 2006: 59)

The topic construction without a topic marker is illustrated in (4). The sentence is about the object constituent *Ama*, which obligatorily appears as a pronoun in the matrix clause, indicated by subscript ‘i’.

- (4) *Ama_i, me huu no_i*
 Ama I saw her
 ‘Ama, I saw her.’

(example in orthography, from Ermisch 2006: 58)

Syntactically, it is claimed that the topic forms its own phrase, and the matrix clause starts with an embedded TP (Marfo 2005), as illustrated in (2). According to Marfo and Bodomo (2005: 192), any dislocated clause in Akan requires that the dislocated constituent has to be realized in the matrix clause. In case of a dislocated subject constituent, it appears as a resumptive pronoun cliticized to the verb.

There is some debate in the literature as to whether the distinct topic constructions mentioned above express different pragmatic functions. For instance, the topic marker *de* expresses a contrast with a referent from the context (e.g., Boadi 1974, Amfo 2010), while the construction without a topic marker is interpreted as a more neutral aboutness topic. Since this paper is concerned with the prosodic marking of topic constructions, the different meaning distinctions are left aside.

For this study, the collected data will compare simple SVO sentences with two types of topic constructions: (a) a topic construction with the topic marker *de* (see (2)), and (b) a topic construction without a topic marker (see (4)).

3 Production study

To collect the data for the present study, a reading study was developed, controlling sentence material for topic construction, sentence length, and lexical tone. Because topics in Akan can be expressed with or without topic markers, but at the same time, topics are dislocated from the matrix clause, the aim of this study is to investigate the prosodic realization of topic constructions. Possible prosodic cues that can signal a topic constituent include pauses, pitch reset, and downstep interruption.

3.1 Method

3.1.1 Speakers

Four native Asante Twi speakers (two female) participated in this study. They did not report any speech, language or hearing disorders. All were fluent in the regional variety of English. Participants were in their mid-twenties and were paid a small amount for participation.

3.1.2 Speech materials

Sentences were constructed to compare simple SVO sentences with sentences containing a subject in a topic constituent that is marked with and without an overt topic marker. The tone on the topic constituent was controlled, i.e. in an identical sentence frame, the subject ended either in a H tone or in a L tone testing for a possible pitch reset after the topic clause and before the matrix clause.

The first set of data contains sentences with eight syllables ((5) and (6)). In (5-a), the topic constituent *Kofi* is morphologically marked by a topic marker *de*, and the topic constituent appears as a resumptive pronoun cliticized to the verb in the matrix clause. Note that the phonetic realization of the topic marker *de* in the dialect of Asante is [dèè] (Amfo 2010: 224, Note 23). Hence, the topicalized constituent consists of four syllables. In (5-b), the topic constituent has no morphological topic marker. To maintain an identical sentence length, the subject constituent contains two disyllabic words ‘uncle Kofi’. The subject is realized as a topic since the resumptive pronoun appears as cliticized to the verb of the matrix clause. In the data elicitation task, the topic constituent was separated from its matrix clause by a comma. The baseline is the SVO sentence in (5-c). With respect to lexical tones, the final tone in the topic constituent was H when no topic marker followed (5-b), but L in the case of the topic marker (5-a).

- (5) a. Topic, topic marker
 kòfí dèè ð-à-bá hà
Kofi TOP 3SG.SBJ-PFT-come here
 ‘As for Kofi, he has come here.’
- b. Topic, no topic marker
 wòfà kòfí ð-à-bá hà
uncle Kofi 3SG.SBJ-PFT-come here
 ‘Uncle Kofi, he has come here.’
- c. No topic, SVO
 wòfà kòff i-bè-dídì
uncle Kofi PROG-FUT-eat
 ‘Uncle Kofi is about to eat.’

A comparable set of sentences in (6) contains the name *Addo* instead of *Kofi*. Associated with a L tone pattern, the final tone of the topic constituent is thus L. Note however that speakers often realized the name in an anglicized pronunciation resulting in a HL tone pattern. Presumably, this tonal pattern results from transfer from a falling pitch accent (H*L) in English, often found in loan words in Akan.

- (6) a. Topic, topic marker
 àdò dèè ð-à-bá hà
 Addo TOP 3SG.SBJ-PFT-come here
 ‘As for Addo, he has come here.’
- b. Topic, no topic marker
 wòfà àdò ð-à-bá hà
 uncle Addo 3SG.SBJ-PFT-come here
 ‘Uncle Addo, he has come here.’
- c. No topic, SVO
 wòfà àdò ì-bè-dídì
 uncle Addo PROG-FUT-eat
 ‘Uncle Addo is about to eat.’

The second set of data contains five syllables, again varying between the two names *Kofi* (7) and *Addo* (8). This data set does not contain a sentence with a topic marker since the subject or topic constituent only contains the disyllabic name. Note that in (7), the part of the sentence after the subject differs in lexical tone. In (7-a), the resumptive pronoun *ɔ-* carries a L tone, while in (7-b), the perfective marker *a-* carries a H tone. In (8), both the resumptive pronoun (8-a) and the perfective marker (8-b) carry a L tone.

- (7) H-tone target word
- a. Topic, no topic marker
 kòfí ð-bá hà
 Kofi 3SG.SBJ-come here
 ‘Kofi, he comes here.’
- b. No topic, SVO
 kòfí á-bá hà
 Kofi PFT-come here
 ‘Kofi has come here.’
- (8) L-tone target word
- a. Topic, no topic marker
 àdò ð-bá hè
 Addo 3SG.SBJ-come here
 ‘Addo, he comes here.’
- b. No topic, SVO
 àdò à-bá hè
 Addo PFT-come here
 ‘Addo has come here.’

The third set of data contains sentences with nine syllables, again varying be-

tween the same two target words in subject or topic position. The matrix clause contains more words to test the effect of sentence length on a potential pitch reset after a topic constituent. In (9), again, the perfective marker carries a H tone due to the preceding H tone of the subject, while it is L in (10-b).

(9) H-tone target word

- a. Topic, no topic marker

kòfí ð-dí á'má báyéré
Kofi 3SG.SBJ-eat Ama yam
'Kofi, he eats Ama's yam.'

- b. No topic, SVO

kòfí á-dí á'má báyéré
Kofi PFT-eat Ama yam
'Kofi has eaten Ama's yam.'

(10) L-tone target word

- a. Topic, no topic marker

àdò ð-dí á'má báyéré
Addo 3SG.SBJ-eat Ama yam
'Addo, he eats Ama's yam.'

- b. No topic, SVO

àdò à-dí á'má báyéré
Addo PFT-eat Ama yam
'Addo has eaten Ama's yam.'

3.2 Recordings

The speakers were recorded in a quiet room at the University of Ghana, Legon, in 2014. All speakers were recorded at a sampling frequency of 44.1 kHz and 32 bit resolution, using Audacity and a headset (Logitech Internet Chat Headset) that was connected to an Edirol UA-25 sound card plugged in to a laptop (Levono R61). The material was presented in a pseudo-randomized order with the use of presentation software. Each sentence was presented on a separate slide. Items from other unrelated experiments were interspersed as fillers. All test sentences were prepared in Akan orthography with English translation below the target sentence, since the orthography lacks marking for tone. The participants were instructed to read the sentence on the slide silently and consult the English translation in case of tonal ambiguities. After this step, they were asked to produce the sentence aloud. The presentation flow was self-paced.

3.3 Data processing

Data annotation and acoustic f0 analysis were conducted in Praat (Boersma and Weenink 2023). The data were hand-labelled at the levels of the syllable and segments. This includes pauses if there were any silent intervals between words. ProsodyPro (Xu 2013) was run to measure f0 means of syllabic nuclei (vowels). The f0 contours present time-normalized f0 values averaged across the four speakers.

4 Results

The results are presented in three sections, organized according to the prosodic cues indicating phrasing. The analyzed cues include pauses, pitch reset, and downstep.

4.1 Pauses

Listening to the recorded sentences revealed that speakers always produced a pause after a topicalized constituent, while speakers produced substantially less pauses after a subject constituent in an SVO sentence, rendering the pause as optional in SVO sentences. Counting the presence of pauses in the data and calculating their mean duration supports the impressionistic analysis (see Table 1). All sentences containing a topic, either with or without a topic marker, contain unanimously a pause between the topic constituent and the matrix clause. In Table 1, the presence of pause is aggregated over four speakers realizing four sentences per sentence type each, resulting in a maximum of 16 pauses per sentence type condition. In SVO sentences, pauses were realized, albeit less frequently. The number of pauses varies between nine and twelve in the different SVO sentences.

Sentence Type	Sentence length [no of syllables]	Number of pauses [n = 16]	Mean pause duration [ms]
Topic	5	16	501
SVO	5	10	179
Topic marker	8	16	367
Topic	8	16	634
SVO	8	9	208
Topic	9	16	528
SVO	9	12	83

Table 1: Number of and mean duration of pauses between subject or topic constituent and verb object or matrix clause.

Concerning the mean pause duration, the data shows that a pause after a topic constituent is much longer than a pause between a subject and verb in an SVO sentence (see Table 1). In long SVO sentences, the pause is about 83 ms on average. In shorter SVO sentences, the pause is at least twice as long, between 179 ms and 208 ms. Note however that silent intervals of less than 200 ms are not considered a pause (Krivokapić 2007). Hence, the conclusion can be drawn that in SVO sentences, speakers may optionally insert a pause, but many instances of ‘silent intervals’ cannot be considered to be a pause at all, but only a slight interruption of the speech flow. In contrast, the average pause duration after a topic constituent can be considered a real pause. Following a topic lacking a morphological topic marker, the average duration of pauses ranges from 500 to 630 milliseconds. After a topic marker, the pause is shorter, about 370 ms on average, suggesting that the presence of a morphological topic marker may compensate for pause duration.

4.2 f0 contours and pitch reset

The averaged time-normalized f0 contours measured in Hz are depicted in the following figures. Each syllable corresponds to five measurement points. Figure 1 represents sentences with eight syllables, Figure 2 the short sentences with only five syllables, and Figure 3 the longer sentences, which, in comparison to Figure 2, have the same length of the initial subject or topic constituent but a longer matrix clause. In all figures, there is an interruption of the contour between the subject or topic constituent (point 20 in Figure 1, point 10 in Figure 2 and 3) to highlight the potential break of the f0 contour between the topic and matrix clause. The gray line in each Figure corresponds to the SVO baseline sentence. The orange line shows a sentence with a topic constituent that does not contain a morphological topic marker. Figure 1 additionally includes the sentence with a topic marker represented by the blue line.

In comparing the f0 contours between sentences with and without a topic marker with comparable SVO sentences (Figure 1), it is noticeable that there is no clear pitch reset at the beginning of the matrix clause. Recall that in the upper panel of Figure 1, the subject or topic ends in a H tone, in the lower panel, it ends in a L tone. The topic marker (blue) in both panels carries a lexical L tone.

Comparing the SVO sentence (gray) with the sentence without a topic marker (orange) in Figure 1, it can be seen that the f0 contour with the subject or with the topic constituent forms a coherent descending f0 pattern. There is no pitch reset at point 21. Comparing the two contours with the sentence that contains a topic marker (blue), it is observed that there is a slight pitch reset (10 Hz upper panel, 25 Hz lower panel). The f0 difference between the gray and orange line

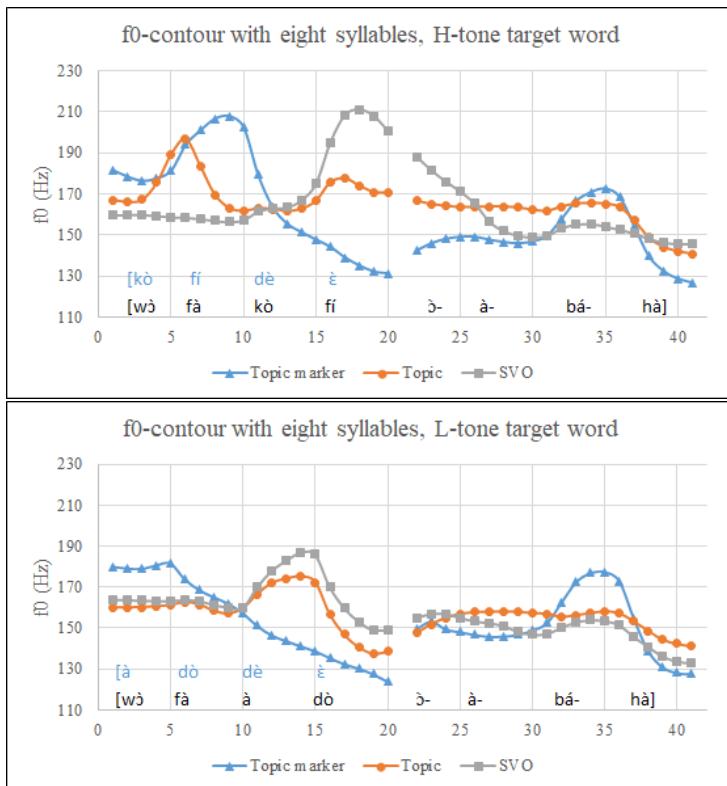


Figure 1: Time-normalized f0-contours for eight syllable sentences comparing SVO (gray) with topic sentences containing (blue) or not containing a morphological topic marker (orange). In the upper panel, the subject or topic constituent ends in a lexically H tone, while the topic marker ends in a lexically L tone. In the lower panel, the subject or topic constituents end in a lexically L tone.

compared to the blue line in the upper panel of Figure 1 results from a difference in lexical tone, which is H for the former two conditions and L for the latter one. In contrast, all three sentences on the lower panel of Figure 1 end in a L tone. The topic marker ends lower (on average by 10 to 25 Hz), suggesting the presence of a stronger phrase boundary. The f0 of the SVO sentence (gray) and of the sentence without a topic marker end roughly at the level at which the matrix clause continues. There is no pitch reset. The matrix clause begins with L tone syllables, creating a low-tone plateau.

Figure 2 shows short sentences where the subject and topic constituent each have two syllables. In the upper panel, the initial constituent ends in a H tone, while in the lower one, it ends in a L tone. After the H tone, the following f0 contour continues without a pitch reset in both cases. After the L tone, there is a slight pitch reset of approximately 18 to 25 Hz in both the SVO sentence and after the topic. Since the subsequent syllables carry L tones, a L tone plateau would be expected. However, the slight pitch reset is not attributed to the presence of the topic constituent because it occurs equally in both sentence conditions.

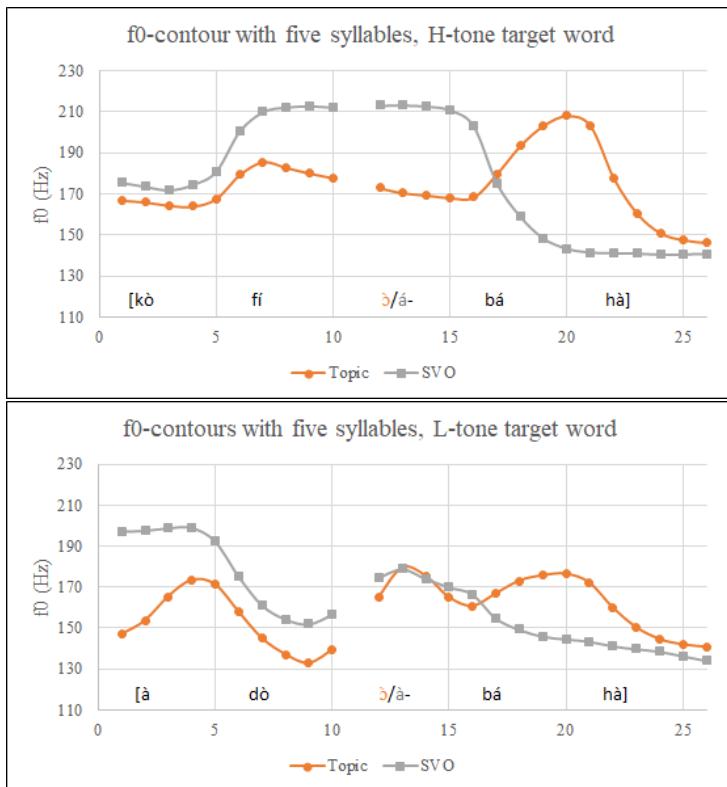


Figure 2: Time-normalized f0-contours for five syllable sentences comparing an SVO sentence (gray) with a topic sentence that contain no morphological topic marking (orange). In the upper panel, the subject or topic constituent ends in a lexically H tone, in the lower panel, in a lexically L tone.

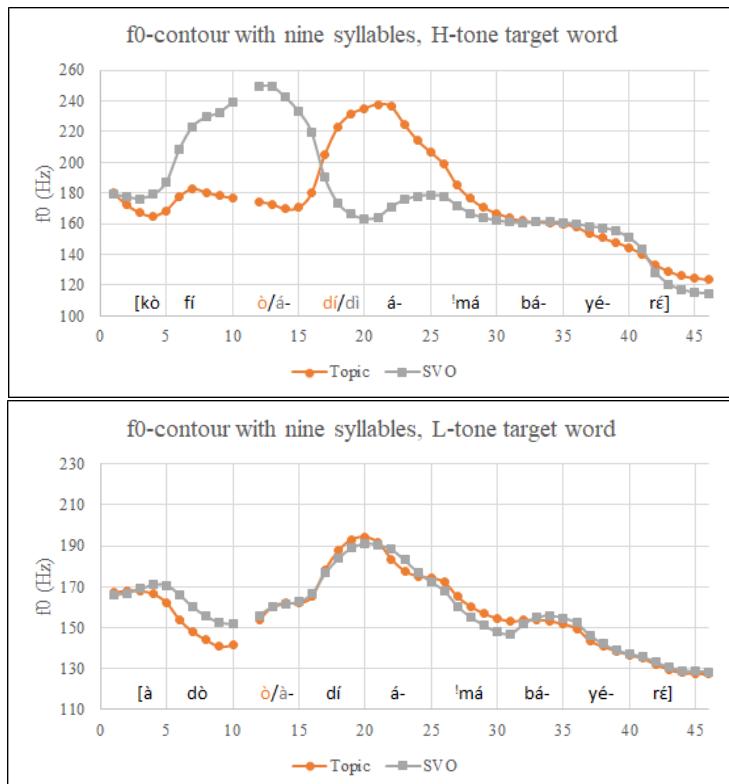


Figure 3: Time-normalized f0-contours for nine syllable sentences comparing an SVO sentence (gray) with a topic sentence that contain no morphological topic marking (orange). In the upper panel, the subject or topic constituent ends in a lexically H tone, in the lower panel, in a lexically L tone.

In Figure 3, long sentences are presented where the subject or topic constituent, as in Figure 2, consists of two syllables each. In this case, the matrix clauses are longer than in Figure 2. Since longer sentences are expected to have a higher overall pitch range (Genzel 2013), a potential effect of pitch reset should be more pronounced here. However, what we observe in Figure 3 is that there is no pitch reset between the topic constituent and the matrix clause. After the H tone (upper panel), the f0 contour integrates into the overall falling pitch contour of the sentences. After the L tone (lower panel), there is an f0 difference of 15 Hz in both sentence conditions, which is smaller than in Fig-

ure 2. Again, we cannot speak of a pitch reset in this case since it appears in both sentence conditions.

4.3 Downstep

In a typical SVO sentence, downstep occurs, indicating the lowering of the f0 of H tones after L tones (e.g., Dolphyne 1988, 1994, Genzel and Kügler 2011). Usually, the first H tone in an utterance defines the pitch range of that utterance, relative to which the subsequent H tones are scaled. The relationship from one H tone to the next can also be considered as an indicator of whether the tones are realized within a phrase or in separate phrases. If two non-adjacent H tones are realized at a similar height, one may conclude that there is a phrase break in between and each of the two H tones defines the ceiling of the pitch range of their corresponding phrase. If, on the other hand, downstep is observed, one may conclude that the words carrying the H tones are uttered in the same phrase.

For example, looking at the upper panel in Figure 1, in the SVO sentence (gray), it can be observed that the first H tone on the second syllable of the subject *Kofi* defines the pitch range of the sentence, and the following H tone on the verb *ba* is lowered relative to the first H tone. In comparison, it can be seen that in both sentences with a topic constituent (blue and orange), the H tone on the verb of the matrix clause is realized higher than in the SVO sentence. This difference in tonal scaling suggests that the H tone on the verb of the matrix clause is realized in a separate phrase. Although this H tone is also realized lower compared to the preceding H tone, the difference in scaling on the verb indicates that a separate phrase is realized after the topic. The fact that the H tone on the verb is not realized as high as the one on the subject, but still higher than a regular downstepped H tone, suggests that the phrase of the topicalized clause and that of the matrix clause are likely recursively embedded.

This effect is also evident in the upper panel of Figure 2. The H tone on the verb is higher than the H tone on the topic constituent (orange) and thus represents the pitch range for the prosodic phrase of the matrix clause. The effect may not be as pronounced in the L tone condition (lower panel of Figure 2) presumably because there is no preceding H tone in the topic constituent as a reference value. Thus, the H tone on the verb is the first H tone of the utterance in the SVO sentence as well as in the sentence with a topic, which is why both are scaled similarly high.

5 Conclusion

This paper investigated the prosodic realization of topics in Akan. For this purpose, sentences were constructed to control for the factors of topic construction, sentence length, and lexical tone. Although topics in Akan are morphologically expressed through a topic marker and syntactically through left-dislocated clauses, the goal of this study was to uncover any invariant patterns of the prosodic realization of topics. To achieve this, three prosodic cues were analyzed, which typically indicate prosodic phrasing. These cues are pauses, pitch reset, and downstep. Pitch reset has already proven to be a prosodic feature for signaling the boundaries of embedded phrases with their matrix clauses in Akan (Kügler 2016a).

In Akan, topics are often expressed with the help of morphological marking, such as a topic marker (Amfo 2010, Boadi 1974, Ermisch 2006, Saah 1994), but this is not necessarily obligatory, as demonstrated by the topic construction in (4). However, what these topic constructions have in common is the presence of an obligatory resumptive pronoun as a clitic on the verb of the matrix clause and the positioning of the topic constituent in sentence-initial position (Amfo 2010, Boadi 1974, Ermisch 2006, Saah 1994). This raises the question of whether the different topic constructions are uniformly expressed through prosodic cues. For the prosodic expression of *focus* in Akan, we have already identified a strategy in which the H tones of a focused constituent are realized lower than comparable H tones of a constituent that is not in focus (Kügler and Genzel 2012). Therefore, we may expect a prosodic strategy for topic marking as well.

The results of the present study indicate that pauses after a topic constituent are obligatory. In all sentences from all speakers, a pause after the topic constituent was realized. On average, this pause lasted 500 to 630 ms. In contrast, very short ‘silent intervals’ were measured in the SVO control sentences, most of which cannot be interpreted as pauses (e.g., Krivokapić 2007: for the lower limit of at least 200 milliseconds to consider it a pause), but rather as minimal interruptions of the speech flow. Furthermore, these short interruptions did not occur in all sentences. As a conclusion, we infer that a pause of 500 ms and longer serves as a clear indicator of the boundary of a topic constituent in a prosodic phrase. However, SVO sentences do not require a pause after the subject.

Regarding the pitch reset cue, the data indicates that a pitch reset after a topic constituent is not obligatory. Only after a final L tone in the topic constituent there is a slight f0 increase at the beginning of the matrix clause. On average, this increase is 10 to 25 Hz. In addition, this f0 increase occurred both after a topic and after a subject in the SVO sentence, suggesting that the tonal config-

uration causes the f0 rise rather than the presence of a topic constituent. When comparing these values with those of a pitch reset in an embedded clause of approximately 50 to 60 Hz (Kügler 2016a), it becomes apparent that the small f0 increase cannot be considered as a pitch reset and, therefore, not as an indicator of a phrase boundary.

Finally, we evaluated the criterion of downstep. Downstep usually occurs within a phrase. If there is an interruption in the downstep pattern, we expect the presence of a prosodic phrase boundary. The data from the present study suggests that H tones in the matrix clause indeed define a new pitch range, thus interrupting the downstep pattern. This indicates that a separate prosodic phrase of the topic constituent is present, but it likely forms an embedded structure with the phrase of the matrix clause.

The fact that embedded clauses obligatorily exhibit a pitch reset while topic constituents do not raises the question of the nature of the prosodic phrase in which a topic is phrased. If we assume that an embedded clause represents its own, possibly recursively embedded intonation phrase (Kügler 2016a), then a topic constituent may only project a phonological phrase instead. However, this is speculative and requires further investigation. Undoubtedly, though, topics in Akan are prosodically phrased within a separate prosodic phrase, as indicated by the presence of an obligatory pause and the interruption of a down-step pattern within a whole utterance.

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Verum focus is not verum

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1 Introduction

In the discussion of a collective of authors – Daniel Gutzmann, Katharina Hartmann and Lisa Matthewson – to which our jubilarian belongs and which is published as Gutzmann et al. (2020)¹, two hypotheses (the *focus accent thesis* FAT and the *lexical operator thesis* LOT) are presented, discussed and evaluated.² Both hypotheses assume that an isolated VERUM element (each with specific properties and conditions of its insertion) occurs (FAT) or is inserted (LOT) in sentences and relates directly to the proposition.³

I would like to argue that the assumption of such a VERUM predicate or operator is – from a logical as well as a sentence-grammatical perspective – not without problems. Presumably, these arise from the fact that the meaning of a natural language sentence is occasionally understood as a pure proposition, without taking into account that the meaning of a sentence includes a further component that expresses the truth validity of the proposition. This component is the *sentence mood*. It is essentially expressed in German and English by the occupation variants of the two left-peripheral clausal positions in which – at the same time – the regular realisations of the verum focus take place. This fact obviously suggests to relate sentence mood and verum focus to each other. Under this assumption, verum focus is derived from an independently founded concept which is necessary for sentence grammar anyway, using further regular grammatical means. In German and English, this grammatical device is the focus.

In their discussion, GHM do not mention the category *sentence mood* and its relation to the truth conditions of the expressed proposition as it is present in declarative and interrogative sentences.

In the following, I will show that, firstly, the truth conception of FAT is unsuitable for capturing the truth properties of sentences with the help of a VERUM

¹In the following abbreviated as GHM.

²I am grateful to Hardarik Blühdorn and Christopher Saure for reviewing, commenting, and providing helpful remarks.

³See also Gutzmann and Castroviejo (2011: 145ff.).

predicate and that, secondly, the properties of the operator used by LOT, which are based on a conversational operator, correspond in the essential respects to the properties of the declarative sentence mood. Thus, the operator introduced by LOT can be related to a grammatical component that is constitutive for sentence grammar anyway. Therefore a conception is proposed,

- (1) a. which attributes the semantic and pragmatic effects of verum focus to the interaction of regular grammatical means,
- b. which assumes the component sentence mood, which always occurs in sentences (like the one with LOT proposed operator),
- c. which, however, only shows the specific (VERUM) effects when additional grammatical means (such as focusing) are used (like the one with LOT proposed operator),
- d. which, however, at the same time, also include the VERUM effects in other than declarative and y/n-interrogative sentences.

Since, firstly, a pure proposition (without sentence mood) does not lead to a grammatically well-formed sentence, secondly, sentence mood exists as a grammatical category in all known languages,⁴ and thirdly, in German and English the verum focus can be derived compositionally in the interaction of sentence mood with focus⁵, it is an obvious hypothesis that in other languages, too, sentence mood is significantly involved in the effects achieved in German and English with verum focus.

I proceed as follows.

First, I discuss the conceptions of verum focus according to the theory of Höhle (1988, 1992) and the discussion of the two hypotheses FAT and LOT of GHM.

Then, on the basis of Frege's (1919) reflections, I show some central properties of the word "true" and the associated assumptions about a VERUM predicate. The focus is on the view that the relation of the predicate *true* to the proposition cannot be reconstructed as a predicate-argument relation, but as the "progression from thought to judgement" Frege (1982/1997: 32).

The sentence moods discussed in GHM are limited to declarative and y/n-interrogative, so that I would finally like to open up the perspective of also covering the other sentence moods in this way. The operator introduced with LOT must also be specified in a different way for other sentence moods, so that another advantage of the "sentence mood theory of verum focus" is the uniform treatment of the varying phenomena.

This means, however, that verum focus can be reconstructed compositionally from the regular interaction of the grammatical means: sentence mood

⁴See Sadock and Zwicky (1985), König and Siemund (2007), Portner (2018).

⁵See Lohnstein (2016, 2018) for German, Kocher (2023) for Spanish.

constitution and focusation. Moreover, it is possible to reconstruct the effects associated with the so-called ‘verum focus’ in other languages with the help of other grammatical or lexical means. Since the operator associated with LOT largely corresponds in content to the sentence mood *declarative*, it can be identified with this mood.

2 Verum focus

2.1 By Höhle (1988, 1992)

Verum focus in German (and English) is a phenomenon that can be expressed essentially at the left periphery of the sentence by an H*L pitch accent on the finite verb (F verum focus) (2), a conjunction (C verum focus) (3) or a relative or – in the embedded case – interrogative pronoun (RW verum focus) (4):⁶

- (2) F verum focus
 - a. Pavarotti SINGT eine Arie (declarative)
‘Pavarotti DOES sing an arie’
 - b. SINGT er (denn) eine Arie (y/n-interrogative)
‘DOES he sing an arie’
 - c. Wer SINGT (denn nun) die Arie (wh-interrogative)
‘Who SINGS (then) an arie’
 - d. SING (jetzt mal) die Arie (imperative)
‘SING (now) the arie’
 - e. HÄTte doch bloß Pavarotti die Arie gesungen (optative)
‘If only Pavarotti HAD sung the arie’
- (3) C verum focus
 - a. Karl hat behauptet, DASS Pavarotti die Arie singt (dep. *dass*-clause)
‘Karl has claimed THAT Pavarotti sings the arie’
 - b. Es ist aber nicht klar, OB er sie singt (dep. *ob*-clause)
‘But it is not clear WHETHER he sings it’
- (4) RW verum focus
 - a. (Du hast mir erzählt, wer die Arie NICHT singt)
Jetzt will ich wissen, WER sie singt (indir. wh-interrogative)
‘(You told me who does NOT sing the arie)
Now I want to know WHO sings it’
 - b. (Dort steht der Maestro, der die Arie NICHT singt)
Aber hier steht der Maestro, DER sie singt (relative clause)

⁶For better readability, capital letters mark the position of the H*L pitch accent.

‘(There stands the maestro, who does NOT sing the arie)
But here stands the maestro WHO sings it’

Verum effects on finite verbs in final position are highly restricted and, according to Höhle (1992: 129), do not belong to the actual realisations of verum focus.⁷

Verum focus is characterised by Höhle (1992: 114) as in (5):

- (5) In the cases under consideration, a meaning element VERUM is assigned to the verb, so that this element is emphasised by the stress on the verb.

Focus in general is understood in the following way (cf. Höhle 1982: 87):

- (6) a. a variable for phonetic material,
b. a sentence operator,
c. a conjunct in the normalised logical form.⁸

A focus according to characterisation (6-b) or (6-c) is called a ‘semantic focus’ by Höhle (1982: 88).

It is noteworthy that the realisation of the accent must take place exactly in the left sentence bracket (C^0 -position) if it is phonetically filled, and can be exactly on the prefield position phrase (SpC-position) if the position C^0 is phonetically not filled. In the latter case the accent realisation in complex RW-phrases must lie exactly on the R- or the W-element.⁹

Höhle (1992) discusses not only the solution with a VERUM predicate but also the so-called *IT-interpretation of the verum focus*. He rejects this analysis because a *pragmatic IT-operator* (illocution type operator) can occur in independent but not in dependent clauses. Since the verum focus can occur in both types of sentences, Höhle rejects the IT-operator solution. If we substitute the *pragmatic concept of the IT operator* for the *semantic concept of sentence mood*, it becomes clear that a sentence mood interpretation of verum focus is very possible, because both independent and dependent sentences have it (see Lohnstein 2016, 2018). I favour this kind of treatment of the verum focus phenomenon throughout this contribution.

⁷For the theoretical treatment of these effects, see Lohnstein (2018: 79ff.).

⁸A normalised logical characterisation is illustrated by Höhle (1982: 88) with an example:

- (i) a. SCHENK(KARL, KIND, BUCH)
b. $\exists r \exists x \exists y \exists z (r(x, y, z) \&$
 $r(x, y, z) = \text{SCHENK}(x, y, z) \&$
 $x = \text{KARL} \&$
 $y = \text{KIND} \&$
 $z = \text{BUCH})$

⁹For the derivation of these characteristics, see Lohnstein (2018: 76ff.).

2.2 By Gutzmann et al. (2020)

GHM discuss the phenomenon of verum focus under two hypotheses: the *focus-accent thesis* (FAT) and the *lexical-operator thesis* (LOT). They test their validity on the basis of various non-European languages in order to decide which of the two should be given preference. The first hypothesis is characterised as follows (GHM, 3):

(7) **FAT:**

- a. The verum accent is a focus accent.
- b. It focuses a covert VERUM predicate which marks the proposition expressed by a sentence as true.

This leads to an expression, which is a formulaic abbreviation for FAT:

(FAT) verum accent := covert predicate verum + focus marking

The verum element is used in the sense of the redundancy theory¹⁰ as an identity function over propositions, so that the following formula applies (GHM, 4):

$$(8) \quad [\![p]\!] \Leftrightarrow [\![\text{verum}(p)]\!]$$

It leads GHM to the assumption “that every (positive) sentence involves a VERUM predicate with a trivial meaning, [...].” In fact, this supposedly trivial meaning can only be attributed to the *declarative* mood. For the other sentence moods, quite different assumptions are necessary.

The connection to the conditions of the discourse context is provided by the ‘context condition’ (GHM, 6):

(9) **Context condition** (question-based)

An utterance of sentence S is felicitous in a context c if $[\![S]\!]^f = \text{QUD}(c)$.

To formulate LOT, GHM use the conversational-epistemic operator proposed by Romero and Han (2004), which expresses not the speaker’s certainty about the truth of the proposition expressed, but the fact that p is to be added to the Common Ground. Accordingly, VERUM in GHM’s final form is fixed as in (GHM, 39: (113), here as (10)):

$$(10) \quad [\![\text{verum}]\!]^{u,c}(p) = \checkmark, \text{ if the speaker } c_S \text{ wants to prevent that } \text{QUD}(c) \text{ is downdated with } \neg p.$$

In somewhat abbreviated form, this means that the speaker does not want – in

¹⁰See, for example, Frege (1976: 271) or Ramsey (1927/1931)

the case of declarative and y/n-interrogative sentences – the alternative to the affirmation (i. e. the negation) to be inserted into the CG.

According to LOT, the verum accent is not a focus accent, i.e. it does not refer to focus alternatives in relation to the QUD, as the weak FAT does, nor to salient alternatives, as the strong FAT wants it. Rather, the verum accent provides a way of realising a lexical verum element that is responsible for the specific discourse conditions and the successful use in an utterance. Instead of assuming that every (positive) sentence has a verum element with trivial meaning, the operator formulated under LOT occurs only when the sentence is actually verum-marked. LOT thus takes the following form (GHM, 8):

- (11) **LOT:** verum accent := conversational operator, possibly realized by accent

“That is, we argue for a universal semantic claim, namely that the semantic (or pragmatic) phenomena of verum and focus are separate, instead of verum being a special case of focus.” (GHM, 10). As far as I can see, no one has ever claimed that the VERUM component alone is a special case of focus. The compound *verum focus* does denote a special kind of focus. But it does not mean that VERUM alone should be understood as a special focus phenomenon (see also Höhle’s characterisation in (6)). The term verum focus characterises – in the regular interpretation as a nominal compound – a special kind of focus and at the same time the interaction with the VERUM component. This is of course also suggested by the title of GHM’s contribution: “Verum focus is not focus”. Since Höhle coined this term for the phenomenon in German, the designation is appropriate. For other languages, in which the relevant VERUM effects are realised without focus, other designations may be appropriate. In this sense, GHM also argue that by including two Chadic languages (Afro-Asiatic) and a Tsimshian language, it can be shown that the focus-bound VERUM interpretation proposed by FAT is inferior to the LOT hypothesis, which does not necessarily realise the VERUM effect by means of focus.

Both theses assume that there is an isolated VERUM operator which always occurs in FAT and can be introduced in LOT by suitable grammatical means. In German and English, this is focusation, which has earned the phenomenon the name *verum focus*. It is clear that this designation should be chosen differently for languages that do not use focusation but other grammatical means to achieve the typical effects.

Against the background of the two hypotheses discussed by GHM, I would like to argue that

- (12) a. part of the meaning of a sentence which expresses its truthfulness *always* occurs in the sentences in question. This property is criticised by GHM (4) in the context of FAT, and trivialised by means of the relation $\llbracket p \rrbracket \leftrightarrow \llbracket \text{VERUM}(p) \rrbracket$.
- b. the operator specified in FAT, however, is not a suitable means to represent the validity of truth of the proposition of the sentence expressed,
- c. the (morpheme-like) operator introduced in LOT does not exist,
- d. but the properties assigned to it by GHM correspond to the properties of the declarative sentence mood.

(12-a) is well-founded, because propositions can only be expressed in sentences of natural languages in connection with a sentence mood. The declarative mood is the canonical sentence mood for assertions. Other sentence moods occurring in natural languages serve other functions.¹¹

(12-b) is reconstructable with Frege's analysis not as the relation between a predicate and a subject, but as the progression from thought to judgement. If this view is correct, the analysis of the operator associated with FAT is wrong.

(12-c) and (12-d) are related. If it can be shown that (12-d) is correct, it follows under the usual economy conditions¹² that (12-c) is also correct. It is therefore sufficient to show that (12-d) is correct.

3 Truth of propositions vs. truth of clauses

The concept of *truth* has been interpreted in different ways in the history of Western philosophy.¹³ In the field of analytical philosophy and modern semantic research, it is related to the concept of *proposition*.

Propositions occur in natural language sentences only in connection with a sentence mood. The declarative sentence mood expresses that the speaker *believes* the proposition *to be true*, which of course does not mean that the proposition *is true*. Verum focus is an appropriate means of resolving a dispute about the truthfulness of a proposition. This view also underlies LOT in the formulation of GHM, 39: (113), reproduced in (10).

Let us first turn to the properties of the predicate *true* in Frege's analysis.

¹¹Cf. Peirce (1897), Frege (1919), Sادock and Zwicky (1985), Altmann (1987), Brandt et al. (1992), Lohnstein (2000), Truckenbrodt (2006), König and Siemund (2007), Portner (2018).

¹²As formulated, for example, on the basis of Ockham's Razor: "Entia non sunt multiplicanda praeter necessitatem" in Sober (2015) and also Chomsky (1995).

¹³A good overview is given by Glanzberg (2022).

“The word ‘true’, then, by its meaning, makes no essential contribution to the thought. If I assert ‘it is true that sea water is salty’, I assert the same thing as if I assert ‘sea water is salty’. In this it can be seen that the assertion is not in the word ‘true’ but in the assertive force with which the sentence is uttered. After that, one might think that the word ‘true’ has no meaning at all. But then a sentence in which ‘true’ occurs as a predicate would also have no sense. One can only say: the word ‘true’ has a sense that contributes nothing to the sense of the whole sentence in which it occurs as a predicate.”¹⁴

Propositions correspond to the thought (in Frege’s sense) that is expressed with a sentence. The thought or proposition can be true or false: “Every proposition in which the meaning of the words is important is therefore to be understood as a proper name, and indeed its meaning, if it exists, is either the true or the false.”¹⁵

In the conception of formal semantic theory in the wake of Carnap (1947), the proposition p is reconstructed as an intensional function (of possible worlds into truth values) that maps a possible world w onto the true iff $w \in \llbracket p \rrbracket$, otherwise onto the false. According to this conception, the meaning of a proposition is therefore the true or the false.

However, the term *truth* also occurs in connection with *sentences of natural languages*. There, truth is not expressed directly with a proposition, but occurs in all natural languages together with a sentence mood. At the same time, not all sentences seem to have a relation to truth. As Frege (1919: 34) states: “In order to more sharply elaborate what I want to call thoughts, I distinguish types of sentences. One will not want to deny a meaning to the command sentence; but this meaning is not such that truth could come into question with it. That is why I will not call the meaning of a command sentence thoughts. Likewise, wishful and supplicatory sentences are to be excluded. Only sentences in which we communicate or assert something can be considered.”¹⁶

¹⁴Original: „Das Wort ‚wahr‘ liefert also durch seinen Sinn keinen wesentlichen Beitrag zum Gedanken. Wenn ich behaupte ‚es ist wahr, dass das Meerwasser salzig ist‘, so behaupte ich dasselbe wie wenn ich behaupte ‚das Meerwasser ist salzig‘. Hierin ist zu erkennen, dass die Behauptung nicht in dem Worte ‚wahr‘ liegt, sondern in der behauptenden Kraft, mit der der Satz ausgesprochen wird. Danach könnte man meinen, das Wort ‚wahr‘ habe überhaupt keinen Sinn. Aber dann hätte auch ein Satz, in dem ‚wahr‘ als Prädikat vorkäme, keinen Sinn. Man kann nur sagen: das Wort ‚wahr‘ hat einen Sinn, der zum Sinne des ganzen Satzes, in dem es als Prädikat vorkommt, nichts beiträgt.“ Frege (1915/1976: 271)

¹⁵Original: „Jeder Behauptungssatz, in dem es auf die Bedeutung der Wörter ankommt, ist also als Eigenname aufzufassen, und zwar ist seine Bedeutung, falls sie vorhanden ist, entweder das Wahre oder das Falsche.“ Frege (1982/1997: 30) (see also Lyons 1977: 38, Blühdorn 2022).

¹⁶Original: „Um das, was ich Gedanken nennen will, schärfer herauszuarbeiten, unterscheide ich Arten von Sätzen. Einem Befehlssatz wird man einen Sinn nicht absprechen wollen; aber dieser Sinn ist nicht derart, dass Wahrheit bei ihm in Frage kommen könnte. Darum werde ich den Sinn eines Befehlssatzes nicht Gedanken nennen. Ebenso sind Wunsch- und Bitsätze auszuschließen. In Betracht kommen können Sätze, in denen wir etwas mitteilen

The declarative clause as a canonical linguistic expression of an assertion adds to the proposition the meaning component *that the speaker believes the proposition to be true*. However, in contrast to *being true* (or false) of a proposition, a declarative sentence can only express that the proposition is *judged to be true* (or false). Therefore, while the proposition is true or false, a clause of natural language can only express the judgment that it is true or false. The essential component here is the assertive force supplied by the declarative sentence mood, not the proposition itself: “In the form of the assertion sentence, we pronounce the recognition of truth. For this we do not need the word ‘true’. And even when we use it, the actual assertive force does not lie in it, but in the form of the assertive clause, and where its assertive force is lost, not even the word ‘true’ can restore it.”¹⁷

The predicate *true* does not seem to play any role at all. “One might be tempted to regard the relation of thought to the true not as that of sense to meaning, but as that of the subject to the predicate. [...] The assertion of truth lies [...] in the form of the proposition [...] From this it is to be inferred that the relation of the thought to the true may not be compared with that of the subject to the predicate.”¹⁸ The assumptions associated with this conception generally argue against the use of a VERUM predicate, but: “It can therefore never refer us to the meaning of a sentence alone; but even the mere thought does not give knowledge, but only the thought together with its meaning, i.e. its truth-value. Judging can be conceived as progressing from a thought to its truth value.”¹⁹

Frege (1919: 35) identifies the grasping of the thought with the formation of a yn-question. Accordingly, the thought represents a bipartition of the possible world situations into those in which the thought is true and those in which it is false. The thought thus corresponds to a binary object that divides the set of possible worlds (situations) into two classes: those worlds (situations) that are accurately described by the proposition and those that are not. The “progression from thought to judgement”, in Carnap’s (1947) conception, cor-

oder behaupten.“ (Frege 1919: 34)

¹⁷Original: „In der Form des Behauptungssatzes sprechen wir die Anerkennung der Wahrheit aus. Wir brauchen dazu das Wort ‚wahr‘ nicht. Und selbst, wenn wir es gebrauchen, liegt die eigentlich behauptende Kraft nicht in ihm, sondern in der Form des Behauptungssatzes, und wo diese ihre behauptende Kraft verliert, kann auch das Wort ‚wahr‘ sie nicht wieder herstellen.“ (Frege 1919: 63)

¹⁸Original: „Man könnte versucht sein, das Verhältnis des Gedankens zum Wahren nicht als das des Sinnes zur Bedeutung, sondern als das des Subjekts zum Prädikate anzusehen. [...] Die Behauptung der Wahrheit liegt [...] in der Form des Behauptungssatzes, [...] Daraus ist zu entnehmen, daß das Verhältnis des Gedankens zum Wahren doch mit dem des Subjekts zum Prädikate nicht verglichen werden darf.“ Frege (1982/1997: 34)

¹⁹Original: „Es kann uns also niemals auf die Bedeutung eines Satzes allein ankommen; aber auch der bloße Gedanke gibt keine Erkenntnis, sondern erst der Gedanke zusammen mit seiner Bedeutung, d. h. seinem Wahrheitswerte. Urteilen kann als Fortschreiten von einem Gedanken zu seinem Wahrheitswerte gefaßt werden.“ Frege (1982/1997: 32)

responds to the extensionalisation of the proposition on the world (situation) in question.²⁰

In German sentence grammar, this process correlates with the occupation of the prefield position (SpC) with a [-wh]-phrase.²¹ This expresses the assertion that the speaker *believes the proposition to be true*, it does not mean that *the proposition is true*. After the announcement of this judgment the proposition must be negotiated with the addressees in the further course of the discourse. Only when this negotiation has taken place is the proposition added (or not) to the Common Ground (CG).

Verum effects do actually not occur in propositions, but in sentences of natural language. And the relevant sentence-grammatical properties are not captured at all by the purely logical characterisation in (8). This holds in particular for the syntactic distribution of the (VERUM) accent position, which in German is strictly limited to the positions SpC and C⁰ (with further restrictions on their possible occupations).

To satisfy the condition in (10) that “the speaker c_S wants to prevent that QUD(c) is downdated with $\neg p$ ”, certain measures are necessary. These include:

- (13) a. the speaker claims p,
- b. the speaker wants the addressee to believe p to be true,
- c. so that p is added to CG.

In the next section, I will show that the ingredients (13-a)–(13-c) are already connected with the *declarative* sentence mood.

Before this, however, it should also be emphasised that the so-called ‘verum element’ occurs in all types of sentences. This is somewhat strange under the condition in (10), because even in interrogative, optative and imperative sentences verum readings are possible without a downdate with $\neg p$ being possible at all.

For example, if (14-a) is a QUD, with p as in (14-b), so that p and $\neg p$ represent the space of answers to the QUD as in (14-c):

- (14) a. Did he sign the contract?
- b. p = x signed the contract
- c. QUD = {p, $\neg p$ }

and if (10) indicates the relevant properties of LOT, then one can ask to what

²⁰The concept of the truth of a proposition is often referred to the actual world (reality). However, this is by no means obligatory, because the concept can also be applied to fictional worlds or situations. See, for example, Lewis (1978).

²¹See Altmann (1987), Brandt et al. (1992), Reis (2000), Lohnstein (2000, 2019) and the next section.

extent it captures the verum focus data in (15):

- (15) a. Gestern HAT er den Vertrag unterzeichnet
 ‘Yesterday he signed the contract’
 b. HAT er den Vertrag (denn) unterzeichnet
 ‘HAS he signed the contract (then)’
 c. Wann HAT er den Vertrag (denn) unterzeichnet
 ‘When DID he sign the contract (then)’
 d. HÄTte er doch den Vertrag unterzeichnet
 ‘HAD he signed the contract’
 e. UnterZEICHne jetzt den Vertrag
 ‘SIGN the contract now’

(15-a) and (15-b) can be calculated under these assumptions by means of the characterisation of LOT in (10) adequately. For (15-c) to (15-e), however, quite different conditions must be formulated. For the [+wh]-interrogative sentence in (15-c), p is presupposed, i.e. the contract was signed. $\neg p$ is therefore not a relevant part in QUD at all. If the optative clause in (15-d) is used appropriately, it holds that $\neg p$ is true, i.e. the contract was not signed. So, LOT cannot adequately capture this case either. For the imperative sentence in (15-e), a similar justification for the non-adequacy of LOT applies as for (15-d). Imperative sentences represent a speaker’s wish to be fulfilled by the addressee, to that extent the question of truth does not arise. They also do not answer the QUD. In this respect, it is highly questionable whether (15-e) can be covered by LOT.

It is also by no means the case that the alternatives of verum exclude negation. (16-c) shows that VERUM and negation can occur in a clause at the same time (cf. also Höhle 1992: 127f.):

- (16) I hope he signed the contract
 a. No, he did not sign the contract
 b. Yes, he signed the contract
 c. No, he DID not sign the contract

VERUM(p) and $\neg p$ are therefore not necessarily paradigmatic alternatives, so that this kind of data is also not adequately captured by LOT.

In particular, the discussion of the data in (15) suggests that verum focus and sentence mood should be related to each other. I will motivate this in the following section for the sentence moods declarative and y/n-interrogative discussed by GHM.

4 Verum focus as sentence mood focus

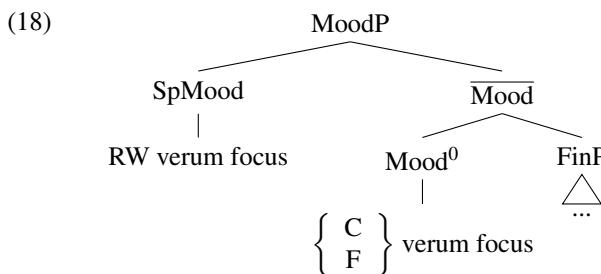
“In the form of the assertive clause, we pronounce the recognition of truth. We do not need the word ‘true’ for this. And even if we use it, the actual assertive force does not lie in it, but in the form of the assertive clause, and where this has lost its assertive force, not even the word ‘true’ can restore it.”²²

If one follows this idea of Frege, the ‘actually asserting force’ is given with the propositional mood, not with the proposition and its truth value.

The canonical form of the declarative clause has the following characteristics in German:

- (17) a. the finite verb is in second position,
 b. the prefield is occupied by a [–wh]-phrase,
 c. the verbal mood is indicative or conjunctive 2,
 d. the right boundary tone is low.

Likewise, the verum focus in German is realised precisely in the syntactic positions which I summarise here as a MoodP. This syntactic projection corresponds to the classical CP so that the left periphery of the clausal structure is given as in (18):



RW verum focus is possible exactly when the Mood⁰ position is phonetically empty.²³

Sentence mood is a universally occurring categorisation of the semantic description of natural languages.²⁴ Specifically, the declarative mood can be as-

²²Original: „In der Form des Behauptungssatzes sprechen wir die Anerkennung der Wahrheit aus. Wir brauchen dazu das Wort ‚wahr‘ nicht. Und selbst, wenn wir es gebrauchen, liegt die eigentlich behauptende Kraft nicht in ihm, sondern in der Form des Behauptungssatzes, und wo diese ihre behauptende Kraft verliert, kann auch das Wort ‚wahr‘ sie nicht wieder herstellen.“ (Frege 1919: 63).

²³For details, see Lohnstein (2016, 2018).

²⁴See Sadock and Zwicky (1985), König and Siemund (2007) on the basic types declarative, interrogative and imperative. For German, the optative Altmann (1987), Grosz (2012, 2013) and the exclamative Altmann (1987), d’Avis (2001, 2013) are also assumed, although it is

signed the following provisions:²⁵

- (19) Declarative mood:
- a. S judges that p.
 - b. S announces (claims) that p.
 - c. S wants H to believe that p.

(19-a) describes that the speaker S considers the thought expressed by p to be true (or false). He thus reduces the bipartition of world situations induced by the structure of the thought to the true (or the false) by extensionalising the proposition with regard to the world situation in question. This process takes place within the speaker. It is externalised with (19-b), usually in a discourse situation, so that certain social obligations result from the assertion (Krifka 2014). Connected with (19-c) is S's desire to make the hearer H also believe p to be true, so that p can be added to the Common Ground. The desire to add proposition p to the CG is not only compatible with the desire to exclude $\neg p$, but can also be used to explicitly prevent $\neg p$ from having any validity at all.

However, this determination of the declarative mood corresponds to the properties of the operator characterised with (10) given in (13-a) to (13-c). While GHM assume that this operator does not occur in every sentence, but only when the specific verum effects appear, the *sentence mood theory of verum focus* claims that the sentence mood is always present, but the specific VERUM effects only show up when the language-specific markers for it are also present.

Thus, insofar as the sentence mood *declarative* has the decisive features of the epistemic-conversational operator assumed under LOT, one of the two concepts can be omitted. Since sentence mood is indispensable as a universal category, the operator associated with LOT must be dispensed with. It can, however, be reinterpreted as the sentence mood *declarative*. At the same time, this analysis takes into account the fact that verum focus in German must be realised on the left sentence periphery in the mood phrase (18), and thus accounts for the other sentence moods as well.

As a conclusion, it can be said that sentence mood plays the relevant role in the so-called verum focus constructions. Its realisation through the accent takes place in German (and English) precisely in the corresponding syntactic positions. The resulting research task is to examine the phenomena associated with the so-called verum focus in other languages and their relation to the universal category of sentence mood. It should turn out that the

questionable whether these two categories are actually independent (semantic) sentence moods or whether they only lead to such interpretations at the illocutionary (pragmatic) level. I will not pursue this question further here.

²⁵See Peirce (1893-1913: 140), Frege (1919: 35), Searle (1975: 12), Bach and Harnish (1979: 41), Altmann (1987: 25), Brandt et al. (1992: 61ff.), Tuzet (2006: 333), Lohnstein (2018: 73)

sentence mood plus X derives the resulting effects, where X in German and English is focus, but in other languages other grammatical or lexical means can of course also be used.

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From information structure to argument structure

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1 Introduction

The distinction between information structural categories as abstract semantic notions on the one hand and their marking in natural language on the other is widely accepted in the literature (Krifka 2008, Zimmermann and Onea 2011, Roberts 2011). For example, at the semantic level, topic may stand for some notion of *aboutness* (Reinhart 1981) and focus may signal the presence of alternatives (Rooth 1985). At the formal level, certain types of left dislocations or functional expressions are considered marking strategies of topicality, see, e.g., Wälchli (2020) for a recent overview, and certain prosodic or morphosyntactic patterns are marking strategies of focus in various languages, e.g., Hartmann and Zimmermann (2012). However, the exact locus of information structural categories in grammar remains quite mysterious as they pop up in quite various domains from the cartographic projections (Rizzi 1997) to subtle micro-level interactions with various phenomena in the domain of prosody, case-marking, scrambling, etc. Moreover, these notions are arguably not marked in a systematic one-to-one way in natural languages (see, e.g., Matić and Wedgwood 2013 for focus).

This then raises the question whether there could be a parsimonious broad explication of these notions that captures their omnipresence in grammar, provides a natural typology and semantics for them as grammatical and not only as functional notions. In this paper, I attempt a radical answer to this question by claiming that these notions are *semantic roles* and thus indeed part of argument structure. I acknowledge right from the very start that this will likely be a hard-to-swallow idea and I will do my best to defend it, albeit my arguments in this programmatic paper will target topicality only and I will limit myself to a very brief sketch on how the argument could go for focus in the final section of the paper. However, I wish to at least tentatively point out right from the start that in the large-scale picture emerging from this discussion, one should expect

the entirety of information structure to be reducible to argument structure and argument structure only.

In the remainder of this paper I will start out with a brief background section explicating some of my assumptions about events in natural language, followed by a somewhat detailed analysis of topic and an outlook about how the picture might generalize to focus.

2 Background

One of the core functions of natural language is to report things that happen in the world. In such cases, a sentence α is used to denote an event e (Davidson 1967 and subsequent literature). Importantly, the way in which events are conceptualized and thus represented in grammar is neither entirely objective (thus subject to variation) nor random (being arguably constrained by human cognition) and reveals important aspects about natural language ontology. The usual way in which languages denote events involves some verbal expression, often a finite verb, and a range of syntactic arguments that correspond to the event participants. Thereby the participant structure of the event is usually assumed to mirror the argument structure of the verb, thus grammatical devices of argument structure coding are intimately related to event ontology. One widespread method to make transparent the way in which grammar encodes event structure is Neo-Davidsonean event semantics (Parsons 1990), exemplified in (1) (ignoring event decomposition, higher grammatical projections such as aspect, tense and modality.)

- (1) a. Elisa hit Jane.

$$\lambda e. hit(e) \wedge AG(e, Elisa) \wedge PAT(e, Jane)$$
- b. Elisa hit Jane with her pillow.

$$\lambda e. hit(e) \wedge AG(e, E) \wedge PAT(e, J)$$

$$\wedge INST(e, i x. [pillow(x) \wedge owner(x, E)])$$

In (1-a) the event happening in the world which is reported by the sentence is an event of hitting and the two participants in that event are two individuals, Elisa and Jane. They play different roles in that event: Elisa is the **AGENT** and Jane is the **PATIENT**. These roles are reflected in the argument structure of the verb *to hit*. In particular, the agent is encoded as the subject and the patient is encoded as the direct object. In (1-b) the event is different. This time, we have an additional participant: *the pillow*, which plays the role of the **INSTRUMENT** and is realized as a PP in the sentence. These observations constitute common sense linguistic knowledge, even though the technical implementations can differ substantially in various theories, e.g., semantic roles could be mapped to asymmetric syntactic projections of verbs sensu (Hale and Keyser 1998).

It is still nearly common sense that these observations about events in general transpose, mutatis mutandis, to speech acts. When a speech act occurs, some individuals are involved in specific ways in that event. Under the assumption made above that it is the grammar of natural language that reveals the details of event ontology, the most natural way to further investigate the way in which they are involved in these events, is by considering reports of speech acts, i.e., sentences that express that some speech act happened. Hence, examples like (2) are relevant to study the nature of speech act events. In particular, usually, a speaker and an addressee and the content of what is being communicated immediately come to mind. Good arguments can be made for subsuming these under more general semantic roles such as AGENT, GOAL/RECIPIENT or THEME. However, I will assume in this paper that the above are semantic roles in their own right (whether or not they are special cases of more general ones, following Pietroski 2000, Moulton 2009 and others). Thus, in both examples in (2) the SPEAKER and the ADDRESSEE are the same individuals. Arguably, the CONTENT is different. In (2-a), CONTENT is a proposition, in (2-b), CONTENT might be a question. All three participants have distinct semantic roles in the reported speech act events, and they are realized in different ways as part of the argument structure of the respective verbs: *to tell* and *to ask*.

- (2) a. Elisa told Ashanti that it is raining.
 $\lambda e. tell(e) \wedge SP(e, E) \wedge ADDR(e, A) \wedge CONT(e, \lambda w. rain(w))$
- b. Elisa asked Ashanti whether it is raining.
 $\lambda e. ask(e) \wedge SP(e, E) \wedge ADDR(e, A)$
 $\wedge CONT(e, \lambda v. \lambda w. rain(w) = rain(v))$

With this very basic and hopefully little controversial background, we can turn to the case of topic and how it relates to speech acts.

3 Topics in reported speech acts

Consider the two sentences in (3) which are meant to be speech act reports of the very same speech act. Ashanti may report what she witnessed in at least two entirely accurate ways. Firstly, as in (3-a), which is – at least at first sight – unremarkable for our purposes. Secondly, however, Ashanti may – for whatever reason – want to signal in her speech act report that Elisa made an assertion about Johnny, as in (3-b).

- (3) a. Ashanti: Elisa told me that **Johnny** is a real idiot.
- b. Ashanti: Elisa told me about **Johnny** that he is a real idiot.

The *about*-PP in this type structure is naturally understood as part of the argu-

ment structure of the respective verb (e.g., *to tell*). After all, the PP requires a specific licensing verb whose meaning is needed to interpret the event participation of the PP referent. A list of verbs licensing *about*-arguments in English is provided in Rawlins (2013). In the context of what we have established so far, however, this utterly nonsurprising observation turns out to have an important consequence: it seems to suggest that the argument of *about*, in (3-b), Johnny, plays a role in the event reported, i.e., in the speech act performed by Elisa and directed towards Ashanti.

In the context of intensional verbs and the complexities of deriving *de re* readings it has been suggested by Cresswell and von Stechow (1982) that attitude embedding predicates may have a *res* argument. Moulton explicitly analyses the *about*-argument as the *res*-argument of such predicates. While I stress that I consider Moulton (2009) on the spot in the specific domain of his analysis, I will suggest that indeed topic and res are simply the same thing. What appears as topic from the perspective of information structure is in fact the res from the perspective of argument structure. And because this double-terminology appears unnecessary, I will expand on the idea of Onea and Mardale (2020) and call the *about*-argument the syntactic coding of the semantic role TOPIC thus biting the bullet and claiming that TOPIC is thereby a category of argument structure and argument structure only.¹

The immediate advantage of this analysis is that it correctly predicts that whatever surfaces as the TOPIC of a speech act verb will indeed be the topic of the speech act it reports on. Hence, any of the following speech acts would do as a witness to the speech act report in (3):

- (4) a. Elisa to Ashanti: As for **Johnny**, he is a real idiot.
- b. Elisa to Ashanti: **Johnny**, he is a real idiot.
- c. Elisa to Ashanti: **Johnny** is a real idiot.
- d. Elisa to Ashanti: I hereby assert about **Johnny**, that he is a real idiot.

But there is a complication. While there can be a one-to-one correspondence between the overt root topic of an utterance and the *about*-argument of a speech act report paraphrasing that very utterance, this is not entirely necessary. When reporting on a speech act with an explicitly marked root topic, it is preferred but not necessary to keep the actually marked root topic as the TOPIC of the speech act verb. Consider the sentence in (5) and some ways to report on that speech act.

- (5) Elisa to Ashanti: As for Mary, she loves Jane.

¹In what follows TOPIC refers unambiguously to a semantic role, whereas *topic* may also refer to the category of information structure.

- a. Michael: Elisa told Ashanti about Mary that she loves Jane.
 - b. Michael: Elisa told Ashanti that Mary loves Jane.
 - c. Michael: Elisa told Ashanti that Jane is loved by Mary.
 - d. Michael: Elisa told Ashanti about Jane that Mary loves her.

The reports in (5) are ordered (roughly) by acceptability/accurateness. Thus, we can quickly agree that (5-d) is far from an ideal paraphrase. But is (5-d) literally false? It is hard to say. However, it does seem, at least, that (6) is entailed by (5). This is a serious issue: if the event reported has a certain TOPIC participant, it should be wrong to report it having a different TOPIC participant.

- (6) Elisa said something about Jane.

In the following, I try to strengthen the argument by first considering in more detail the way in which the putative TOPIC-role is encoded in the argument structure of speech act verbs. In the second step, we consider whether we can learn something about the meaning of topics by focusing on the role of TOPICS in the argument structure and whether this can help elucidate the problem posed by examples such as (6).

3.1 Topic in the argument structure

If **TOPIC** is a semantic role, we would expect that various languages systematically mark it as part of the argument structure of speech act verbs, albeit with some variations. Ideally we would even expect it to occasionally be marked as a direct object.

In English, the default preposition that introduces the TOPIC role is *about*. We have seen such examples above. In Romanian, the default marker of TOPIC is the preposition *despre* which etymologically appears to stem from Latin *de super*, meaning the direction down from above. Other prepositions used in Romanian include the abstract partitive *de*. Similarly, in French, we find the preposition *de* as the main encoder of TOPIC. In German, the main TOPIC marker is the preposition *über* (above, on) as shown in (9). Finally, in Hungarian, delative is the default case for TOPIC, as shown in (10).

- (9) Ich habe über dich gesprochen. (German)
- (10) Jancsi Marirról beszélt.
John Mary.DEL talked.
'John talked about Mary.' (Hungarian)

We further find some verbs that seem to introduce the TOPIC-argument as a direct object in present day Romanian. The example (11) is a case in point, showing an alternation between *despre* and a direct object marker *pe* in encoding the same semantic role.

- (11) a. Preotul a vorbit de bine despre Maria.
priest.DEF has talked of good about Mary
'The priest praised Mary'
- b. Preotul a vorbit=o de bine pe Maria.
priest.DEF has talked=CL.3SG.FEM.ACC of good on.ACC Mary
'The priest praised Mary'

Even in English we can find interesting argument alternations with TOPIC: Consider verbs like *discuss*, as in (12), which appear to encode TOPIC as a direct object. (Moulton 2009: 24) provides more examples of this sort in the domain of non-derived content nouns, such as in (13), and argues convincingly that in such cases the *of-* or *about*-argument is not the CONTENT argument, even though such nouns do usually take a content argument.

- (12) a. They debated the president's role in the crisis.
b. The debated about the president's role in the crisis.
- (13) a. The rumor of John's resignation is spreading.
b. The rumor about John's resignation is that it was forced.

While the claim that TOPIC can be encoded as a direct object in English would strengthen the argument that it is part of the argument structure, I am not convinced that in (12-a) and (13-a), we really have a TOPIC argument, because one can more easily add an overt CONTENT-argument to the b-examples, as shown for (12) in (14). Hence, I leave this question open for future investigations.

- (14) a. ?They debated the president's role in the crisis whether it was to be considered positive for the party.
b. They debated about the president's role in the crisis whether it was to be considered positive for the party.

3.2 Topic as a category of thought

Not only speech act verbs in the narrow sense have a TOPIC argument. Indeed, going back to the *res*-argument discussion, it is very natural to see verbs of various propositional attitudes like verbs of knowledge, dreaming, thinking, imagining etc. also taking *about*-arguments. Some English examples are given in (15), which also show alternations of the prepositions used in such cases. We have also seen nominals with *about*-arguments already above, in (16) we show some additional examples.

- (15) a. John knows something about Bill.
 b. Warren thinks about Skylar.
 c. Warren dreams about/of Skylar.
- (16) book/report/teaching on/about something/someone.

One way to analyse such examples, suggested in Onea and Mardale (2020) is that such verbs or nominals involve some discourse and thereby indirectly some speech act component which the in some way ‘inherit’ their topic role. However, it is possible to exploit these additional TOPIC-taking expressions to get one step closer to the very ‘meaning’ of TOPIC.

In particular, note that it is not exactly true that *about* arguments provide a realworld object as the notion *res* would suggest. It can also be an object of thought only. Consider an example in the spirit of Kamp et al. (2011), related of course to cases discussed in Geach (1967):

- (17) John thought that there is a gold coin in his pocket. He boasted about it.

This brings us back to the question how exactly a TOPIC participates in an event. Since whatever way TOPICS participate should generalize to cases such as (17), it should follow that topicality is a *thought-level* event participant. In other words, the TOPIC is not involved in the speech act as an individual but as a thought-of-an-individual in the speaker’s mind. If, then, verbs of thinking (in the broad sense) encode a TOPIC participant, this is because TOPIC is an integral part of thought and only indirectly of speech. A speech act has a TOPIC because acts of thinking have one. While I suspect that a full analysis would need to involve some notion of intentionality in the sense of Brentano (1874), for the purposes of this paper it will suffice to stick with Reinhart (1981): Topics represent (as in a file-card metaphor) the content within an act of thought (or speech act). Hence, whatever the CONTENT of a thought about Skylar may be, that thought is in some sense internally represented by Skylar. If that is correct, we can analyse *a book about Skylar* as a book whose CONTENT can be represented by Skylar in some act of thinking (typically as an integral part of

a speech act). Why natural language would choose to encode this representational object into the argument structure of the respective verbal and nominal expressions remains a question that I can only answer in a way that may seem circular: because this is the event structure of such expressions.

With this in mind, we can return to the problem posed by example (5), repeated here in the relevant part: (18-a) at least seems to entail (18-b).

- (18) a. Elisa to Ashanti: As for Mary, she loves Jane.
 b. Elisa said something about Jane

I suggest that there are two readings of (18-b) shown in (19) and only (19-b) follows from (18-a). But just as with (16), a content can only be *about Jane* through a possible speech act or act of thought such that instantiating the content would make Jane the participant of that particular event.

- (19) a. Elisa performed a speech act about Jane with some content.
 b. Elisa perfomed a speech act with some content which is about Jane.

This immediately predicts the lower acceptability of (5-d), since this would require that we process several steps: Elisa told Ashanti something about Mary, the content is something about Jane, because there can be events that would be about Jane and which would have the same content, thus, Elisa said something about Jane. More generally, think of the well known cases of epistemic closure *know*:

- (20) John knows that a and he is able to deduce from a that b logically follows. Hence, John knows b, even if he may in fact believe non-b.

Notice that this argumentation is in perfect harmony with my claim that topicality is in general a matter of thought and only indirectly a communicative category. If it were a more direct communicative category, one would expect pragmatics to make it even harder to accept sentences such as (5-d) in the relevant situation.

From this we can conclude that there is fair enough evidence that TOPIC is indeed a semantic role which is part of the argument structure of a range of expressions, primarily, speech act verbs, and – moreover – we have a (rough) direction regarding the semantics of topics as forced upon us by the very usage of the typical markers of topicality at this non-root level.

3.3 Root topics

We have thus provided an outline of a theory of TOPIC as a verbal argument of speech act verbs. Thus, we say that TOPIC is part of the event structure of speech acts (and some acts of thought). It should follow then, that when a speech act is actually occurring it will also have a TOPIC participant. Indeed, this can be well observed in (21). In (21-a) *my cousin* is marked both as the TOPIC of the actually occurring speech act, and of the performative verb. In (21-b) *my cousin* is marked as the argument of the occurring speech act only and can be deduced to be the argument of the performative due to the performativity itself. In (21-c) *my cousin* is marked as the argument of the performative verb and thus it can be deduced that it is also the TOPIC of the occurring speech act.

- (21) a. As for my cousin, I hereby claim about him that he is a fake doctor.
b. As for my cousin, I hereby claim that he is a fake doctor.
c. I hereby claim about my cousin that he is a fake doctor.

Marking the **TOPIC** of the occurring speech act is a root phenomenon and is governed by specific grammatical rules. One way to implement the idea is by using silent performative verbs, following Ross (1970) or a speech act projection in the sense of Speas and Tenny (2003), further developed, e.g., in Miyagawa (2012). In this case, one would argue that the root **TOPIC** is the semantic role mapped to one of the arguments of a speech act verb/projection, thus yielding a structure such as (22), though of course a more specific version would likely be necessary as a syntactic implementation.

From this perspective, if we think of TOPIC as a semantic role of speech act events, it naturally follows that it needs to be added to the set of *pragmatic roles* identified by Speas and Tenny (2003) that are then mapped to the actual semantic roles of the denoted speech act event.

A natural way to capture the difference between a left-dislocated/hanging topic and a plain topical subject, then, would be a matter of spell-out. A non-dislocated topic is co-indexed with the TOPIC argument of the speech act event, however, at spell-out only the lower copy gets produced and the higher copy remains implicit.

Importantly, however, even some version of the performative hypothesis naturally lends itself for implementing the current approach at the syntax-semantics interface, the suggestion that TOPIC is a semantic role of speech act events is not necessarily tied to the performative hypothesis. After all, even

scholars who do not buy into the performative hypothesis, would agree that when a sentence is produced some speech act happens. Thus, the event of the speech act with its participants will in some way be tied to the form of the utterance itself. All that really needs to be stated is then that grammar encodes or governs some mappings between the form of an utterance and the semantic roles of the speech act, TOPIC being one of the latter, and thus yielding to some grammatical repercussions.

Importantly, it is not necessary to mark the TOPIC-role at all, but the form of the utterance can or will – by default – always be used to infer the TOPIC, precisely because TOPIC, as a semantic role of utterances, will need to be somehow reconstructed as part of interpreting/understanding speech acts. This claim has to be somewhat qualified, however, as TOPIC – as a category of thought of the speaker – has a lower communicative relevance as compared to the CONTENT, and thus, not being able to reconstruct the TOPIC of a speech act will not always be deemed a communicative failure.

4 Outlook

Let us take the suggested analysis to the limit in this section. What we usually think of as information structure is nothing but a way in which grammar informs about (non obvious) speech act participants. How could this, for example, apply to focus?

While this paper does not provide the space to actually spell out the idea in any detail, I wish to suggest that what we usually call *focus* is the formal reflex of another speech act participant. Moreover, the fact that focus is usually better captured within semantics than topic may be directly tied to this very fact.

In particular, I suggest that every utterance, as a goal-oriented human action, will have its GOAL as an event-participant. Expanding on Roberts (2012) and Onea (2016), I shall call this goal the *question under discussion*.² Thus, while there can be doubts as to whether every speech act has a TOPIC-role (some imperatives may be an exception), I argue that every speech act has a QUD-role by definition (potentially excepting pure expressives!). Because the QUD is usually known from the context, one would expect the QUD to be anaphoric in general, with some under-specified content to help retrieval in context. This

²Here, one needs to clearly distinguish between private goals speakers may associate with speech acts that usually are expressed as adjuncts with some sense of finality, and basic communicative goals we are considering here. This is exemplified in (i):

- (i) I hereby claim for my own pleasure that ASHANTI is the most intelligent.
 - a. QUD: Who is the most intelligent
 - b. Private goal: the speaker's pleasure

is indeed the usual semantics of focus! Thus, I suggest: the category focus in general can be understood as a formal way in which grammar encodes another speech act participant, namely the QUD, which maps to GOAL.

Indeed this comes with a range of correct predictions. Firstly, it predicts that focus can never have a semantic effect that is not mediated by the QUD. While semanticists would have traditionally used the case of focus-sensitivity (e.g. Jackendoff 1972, Rooth 1985) and subsequent literature as a counter-argument, at least since Beaver and Clark (2008) not only exclusives but a range of additional focus-particles have been analysed using the QUD as a semantic device. Thereby focus merely acts as an interface device signalling the QUD. Secondly, it predicts that – because questions and thereby the QUD are well-defined semantic objects – a model theoretic account of focus is much easier to give than a model-theoretic account of topic. Thirdly, it predicts that there cannot be sentences without focus, because that would mean the same as having sentences with no goal, which would amount to an absurd analysis of human action. More interestingly, perhaps one would expect that variation in encoding and interpretive exploitation of focus will be more related to basic notions of question semantics and goals: one would expect that the QUD can vary along the typology of questions, including categories such as polar, wh-, open vs. closed, exhaustive vs. mention-some questions etc. Little surprisingly, a wide range of variation in focus semantics has been linked to such notions in the literature. Lastly, there is no *a priori* reason to assume that focus is the sole means to signal the QUD argument and there is no reason to assume that QUD is the only way in which the GOAL-argument can be manifested. For example, one could think of semantically encoded decision problems such as the ones discussed in Csipak (2015) as cases in point.

The grand picture emerging from my suggestion in this paper is that speech acts, as events, not only have CONTENT, SPEAKER and ADDRESSEE as event participants but a range of further objects including TOPIC and GOAL that in turn determine the interpretation and grammatical coding of the main notions of information structure. Thus, information structure is – on this account – an expression of speech act event structure. The performative hypothesis, may offer the possibility of a completely unified syntax of information structural categories as parts of a higher-verb argument structure, potentially within a cartographic approach Rizzi (1997) and subsequent literature.

One problem of the analysis suggested here is that topic and focus seem to behave differently in embedded environments, focus exhibiting way more and way more intricate local effects. In this programmatic paper, I have little choice but to leave this matter for future research.

Instead, I wish to end by pointing out a final prediction of the approach defended above: in general with semantic roles, an exact definition is usually

difficult, languages exhibit variation where they categorize event participant roles as one or more natural classes. Moreover, languages are expected to solve the problem of mapping of semantic roles to grammatical roles differently and while broad generalizations are useful to a certain extent, micro-variation in these notions will always exist and require more finegrained analysis. Hence, thinking of focus and topic as semantic roles contextualizes the problems of variation in a broader frame and makes variation in marking strategies entirely expected within most of not all grammatical frameworks.

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Part 3:

Semantics and discourse

Ist die *denn* schon 60?!

An essay on *denn* (and *auch*) in questions

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1 Introduction

This essay explores some ideas about the pragmatic meanings of *denn* – and to a lesser extent *auch* – in German interrogative sentences. *Denn* in its most common use is a sentence initial connector meaning ‘because’ or ‘since’. These uses are clearly distinguishable distributionally from the ones considered here, where *denn* occurs in a *Mittelfeld* position (i.e., after the finite verb or a subordinating complementizer), a position typical for German modal particles. I will assume for the time being that these two *denns* are distinct lexemes.

Auch is known first and foremost as a focus sensitive particle, most directly comparable to English *also*. The uses considered here, however, again have *auch* in a position typical of modal particles and with no obvious sensitivity to focus. Such uses are also found in declarative sentences, which, however, are of no importance in the present paper as we are interested in examples minimally contrasting *auch* with *denn*, which, as stated above, does not occur in declaratives. One can diagnose the *auch* in question by certain properties typical for German modal particles: they do not change truth conditions, they are not stressable, and they pretty much only occur right after the subject in a position following a complementizer in embedded clauses, or the finite verb in main declarative clauses. While this leaves some room for misdiagnosis in some cases, I am reasonably confident that the bulk of the examples to be discussed do *not* involve the additive particle *auch*, but the homophonous modal particle.

2 *Denn* and *auch* in polar questions

2.1 The idea

This essay explores the idea that *denn* and *auch* denote propositional operators with discourse oriented, non-at-issue meaning. Both require a contextually given proposition, which I refer to as THE CLAIM (with a captial ‘C’ whenever used in this technical sense), and mark the question they occur in as checking a (pre)condition for the Claim. *Denn* furthermore expresses that the Utterer (at least previously) expected a *negative* answer to the question. *Auch*, as opposed to that, expresses no such expectation and can therefore serve as a good minimal comparison point when it comes to pinpointing the exact pragmatic contribution of *denn*. The distribution and pragmatic effect of *denn* follow from just these assumptions, plus general pragmatic reasoning.

For a polar question like (1), we call the proposition that corresponds to the declarative version of the question – here: ‘you are 18’ – p_Q .

- (1) Bist du schon 18?
 are you already 18

Adding *denn*, according to our hypothesis, requires that there be a Claim (i.e., a contextually given proposition, as introduced above) for which the truth of p_Q – ‘you are 18’ – is a precondition; furthermore, there needs to be a (previous) expectation on the part of U – the Utterer – that p_Q is false.

2.2 Museums, porn, and train tickets

An immediate consequence of the requirement that questions with *denn/auch* need to address a contextually given Claim is that such questions will not occur discourse initially. But that is not all. Consider scenario (2).

- (2) [at the museum ticket counter] A: One ticket please.
 U (the ticket sales person): Bist du (*denn/*auch) schon 18?
 are you ***denn/*auch** already 18

Without either particle, U’s question is perfectly fine if, e.g., the price of admission is cheaper for minors than for adults. But as the only discernable Claim in the context is that A wants to buy a ticket, adding either particle makes U’s response infelicitous, because the truth of the Claim is completely independent of the truth of p_Q , whereas *denn/auch* would require that p_Q is a prerequisite for it.

Things change if we move the exchange to the ticket booth of an adult film theater.

- (3) [at the adult film theater ticket booth] A: One ticket please.
 U (the ticket sales person): Bist du (*denn/auch*) schon 18?
 are you ***denn/auch*** already 18

Now both *denn* and *auch* sound natural in U's question. Why? Because by asking for admission to a porn movie, A implicitly made the Claim that they are old enough to be allowed in; U is checking this claim by the question, since p_Q is a precondition for admission. According to our hypothesis above, using *denn* furthermore conveys a sense of scepticism (U doubts that A is 18), whereas *auch* is neutral in that regard. My judgement is indeed that the question with *denn* is more of a challenge, whereas with *auch* A is just checking what is required to be checked. In other words, A's chances of admission are better with an usher that uses *auch*. But that is subtle and subjective judgement; we will shortly see distributional differences between the two particles which makes the differences in their pragmatic meaning more discernable.

In (3), U could be in one of three states of mind regarding p_Q : They may be convinced that p_Q is true (A clearly looks older than 18); in that case, they probably wouldn't ask at all. They may think that A is *not* 18, because they look younger; in that case, they will ask, and may use *denn*, because they assumed that $\neg p_Q$. Or they may have no expectation regarding A's minor/adult status, in which case they have to ask anyway, which they may with or without *auch*.

Now let us change scenarios again.

- (4) [at train station ticket counter] A: One full price ticket please.
 U (the ticket sales person): Bist du (*denn/#auch*) schon 18?
 are you ***denn/#auch*** already 18

Here, *denn* sounds perfectly natural, but *auch* doesn't. The former datum is expected: By demanding a full price ticket, A implied the Claim that they are not eligible for any discounts, which among other things implies that they are not young enough to get a youth discount. If U knows that minors don't have to pay full price and suspects that A is under 18, it makes sense for them to ask (they're nice); suspecting that $\neg p_Q$ they can use *denn*. But if they have no expectation that $\neg p_Q$, there is also no need for them to ask, because, after all, there is nothing illegal about a minor riding with a full price ticket. In other words, unlike the porn scenario, the only reason to ask the question is if U suspects the answer to be 'no', in which case they'd use *denn* to signal that.

It is instructive to also consider the question without either particle in the full price scenario. According to what I just said, the plain questions 'Are you 18?' should be as odd as that with *auch* in this scenario. Unfortunately, I find it hard to ascertain the facts here. If I try the plain *Bist du schon 18?* in this

scenario, I immediately go for an incredulous intonation (a markedly low tone on *schon* before the high boundary typical of polar questions in general), with an effect very similar to the use of *denn*, i.e. signalling surprise or incredulity. A neutral version of the plain question, as would be perfectly natural in the museum scenario (where, recall, there was no reason to see an implied claim about A's age to begin with) does sound odd to me in the full price scenario. On the other hand, this judgement is certainly subtler than the one regarding the version with *auch*, which clearly conveys that, just as with the adult movie, it is a *condition* on paying full price to be 18, which, given that it is not, makes it sound very odd. So it may be that in fact *auch* is not as neutral as I assumed it to be, but rather conveys a *positive* expectation (i.e., that p_Q). In that case, it would be easier to predict that adding *auch* increases the oddness of the question in the full price scenario.

2.3 The sign on the train

We now have seen scenarios in which neither (museum), both (adult movie), or only one of the particles, *denn*, was possible (full price). For completeness we now consider a scenario that allows only *auch*. As first brought to my attention by András Báráni, Austrian trains often have a sign near the exit saying (5).

- (5) Haben Sie auch nichts vergessen?
 have you **auch** nothing forgotten
 'Do you have all your belongings?'

The purpose of this sign is to get passengers to check that they have collected all their belongings before disembarking the train. So the Claim here is 'passenger is ready to get off the train' (which the passenger made by going to where the sign is, i.e., the exit). A precondition for exiting (at least in the bulletin sense) is that they have all their belongings, i.e., they didn't forget anything ($=p_Q$). The use of *auch* (which, according to my intuition, is not obligatory in this context) makes this connex explicit, and is furthermore compatible with (or perhaps even suggesting, see above) a positive answer. In comparison, using *denn* in the same context is clearly odd.

- (6) [sign on train] # Haben Sie denn nichts vergessen?
 have you **denn** nothing forgotten
 'But do you have all your belongings?'

According to our story, this is expected: *denn* would signal an expected *negative* answer, that is: The passenger did forget something. But why should the author of the sign (say, the imaginary train conductor) have such an expectation?

3 Excursus: Relation to other pragmatic markers

3.1 Aber ('but')

The use of *denn* in interrogatives has a natural affinity to the use of *aber*, 'but'. For example, in the adult movie and full price scenarios, U could as felicitously have replied with (7).

- (7) A: One (full price) ticket please!
 U: Aber bis du (denn) schon 18?
but are you (denn) already 18

Likewise, if they were *sure* (not just suspecting) that A is a minor (i.e., that $\neg p_Q$) they could assert (8).

- (8) Aber du bist noch nicht 18!
 but you are still not 18
 'But you're not 18 yet.'

On the other hand, in the museum scenario (age is relevant, but A made no Claim regarding that), *aber* is as odd as *denn/auch*. More instructively, it would also be completely misplaced on the train sign, where *auch* is perfectly natural.

- (9) [museum] A: Admission for one, please. –
 # U: Aber bist du schon 18?
but are you yet 18
 # [sign on train] Aber haben Sie (auch) nichts vergessen?
but have you (auch) nothing forgotten

A plausible meaning for *aber* in declarative conjunctions is that *X aber Y* conveys that X and Y give (or suggest) different answers to the current question under discussion (QUD; Umbach 2004, 2005, see also Jordanoska 2020, ch.8.). This question under discussion can, for present purposes, be equated with the polar question version of our Claim, e.g., 'Should A be admitted to the adult movie?'; X in the above sense would be 'A wants to be admitted' (they asked), and Y 'A is not yet 18'. Clearly, these imply different answers to the QUD whether A should be admitted. Accordingly, (10) is, as expected, felicitous.

- (10) Du willst ein (Vollpreis) Ticket aber du bist noch nicht 18.
 you want a (full price) ticket **but** you are yet not 18

As a next step, assume that A's asking for a ticket can go proxy for the first clause in (10), i.e., (8) is pragmatically equivalent to the second conjunct in (10); and, finally, in case *aber* introduces a question, assume that the questioner expects that the true answer to the question would be a proposition introducible

with *aber* in the context. That is, A in (7) expects the answer to the question ‘are you 18 yet?’ to be the one that would, in the context, suggest the negative answer to the QUD ‘should you be admitted/pay full price?’, namely ‘no’; hence, it could, by the pragmatics for *aber* sketched above, be introduced by *aber* as in (8). If this chain of reasoning is by and large correct, we derive that the conditions on using *denn* in a polar question are very much the same as those for using *aber* for introducing a polar question or assertion.

3.2 Outer negation

Outer negation in polar question – like *denn* on the present proposal – signals a contrast between a previous expectation and a present open question (see Büring and Gunlogson 2000, Ladd 1981, Romero and Han 2004 a.o.). Thus, questions like those in (11) express a previous belief or expectation on the part of the questioner that the addressee *is*, indeed, a minor (whereas without *nicht* they can be neutral questions).

- (11) a. Bist du nicht (noch) minderjährig?
 are you **not** (still) a minor
- b. Bist du nicht (erst) 17?
 are you **not** (only) 17

And indeed, the questions in (11) could felicitously be used in the full price and adult theater scenarios above, but not in the, neutral, museum scenario. Likewise, a sign like (12) on a train seems as absurd as the one with *denn* in (6), suggesting, as it does, that the sign (or its author) somehow have reason to suspect that the passenger forgot something.

- (12) # [sign on train] Haben Sie nicht etwas vergessen?
 have you **not** something forgotten
 ‘Didn’t you forget something?’

It should be noted that the propositions questioned in (11) and (12) are in effect the opposite of those questioned in the *denn* questions earlier (i.e., ‘your **not** (yet) 18’ and ‘you did forget something’). This is predicted by the proposal explored here: With *denn*, the question itself is posed in such a way that the *positive* answer would confirm the Claim, while the previous expectation corresponds to the negative answer. The previous expectation in an outer negation question, on the other hand, is the content of the non-negated question (you’re under 18), for which we now seek (dis)confirmation (I don’t want to commit to what should be called the *positive* answer to an outer negation question; the important thing is that the previous expectation is the content of the question *without* the negation).

Summing up, comparison with *aber* and outer negation gives us two tools to reaffirm the assumed pragmatic effect of *denn* in polar questions. At least to an approximation, we predict that a polar question can be introduced by *aber* in a given context if and only if it could felicitously host *denn* in the same context, and if and only if it could alternatively be asked as an outer negation question with the opposite propositional core in that context. As far as I can tell, these predictions seem to be born out.

4 *Denn* in constituent questions

4.1 Basic cases

Denn (unlike *auch*, see below) quite naturally occurs in constituent questions. As with polar questions, this always requires some prior context. Thus (13) is infelicitous if uttered out-of-the-blue to someone at the bus stop (though the question without *denn*, of course, is perfectly natural).

- (13) Wie spät ist es denn?
 how late is it **denn**
 ‘What time is it?’

A natural context for (13) would, e.g., be the one in (14).

- (14) A: Gosh! We should really get going! – U: Wie spät ist es denn?

So far, we have only treated the pragmatics of *denn* in polar questions, for which it was easy to determine p_Q , the proposition that should be true if the Claim is true, and which is being questioned. In order to extend this idea to constituent questions, I submit that we need to be able to pragmatically derive a polar-question-like meaning from the denotation of a constituent question; we need to cook down a set of many propositions (the possible answers to the constituent question) to a set of two (a polar question meaning).

Now, in scenario (14), the set of answers to the question ‘What time is it?’ *can* be partitioned into just two sub-sets: those times at which indeed we should get going, and those, earlier ones, at which we might as well linger; this partition corresponds to the meaning of the polar question ‘Is it so late that we need to get going, or is it early enough to stay?’. The Claim, in our context, is it’s already one of the former, whereas the previous expectation of the questioner U was that its one of the latter; thus *denn* is felicitous here. We may also observe that both replies in (15) would be pragmatically equivalent in scenario (14), as expected given the discussion in §3 above.

- (15) a. Aber wie spät ist es?
but how late is it
 b. Ist es nicht noch zu früh?
 is it **not** still too early

So U's expectation is that the true answer to the question, namely the actual time, does *not* suggest the same as A's utterance: that it is time to go. At the same time, though, U concede the possibility that they were wrong and it is indeed time to get going, contrary to their previous belief. Else they wouldn't ask the question but simply say something like *Why? It's early still!*

A similar use is seen in (16).

- (16) A: Paul hat mich beleidigt. – U: Was hat er denn gesagt?
 P. has me insulted what has he **denn** said
 ‘A: Paul insulted me. – U: Why, what did he say?’

The true answer to U's question is the content of what Paul said to A; the Claim is, of course, that Paul insulted A. Now, again, all the possible answers to the question of what Paul said can be partitioned into two relevant cells: Those that contain insults, thus confirming the Claim, and those that do not. By using *denn* in (16), U conveys that they did not previously expect Paul to insult A, or that they are still skeptical about that Claim.

4.2 Reflexion: Polar *denn* versus constituent question *denn*

What we have done in the previous subsection is, in effect, derive from the constituent question meaning (the set of its answers) a polar question meaning, a set of two propositions, one the disjunction of all answers that confirm the Claim, and one the disjunction of all answers that contradict it. Thereby we were able to assimilate the constituent question uses of *denn* to the polar question uses above. But one ingredient is missing: We assumed above that the form of a polar *denn* question (just like the parallel *auch* question) must be such that the *positive* answer to it confirms the claim (while the negative one doesn't, but is the one U previously suspected). But evidently, constituent questions do not have a positive answer, so where did that part of our pragmatics go? Put differently, how do we know which of the two pragmatically induced partition cells in the constituent question examples corresponds to the positive answer in the polar question examples?

The answer is that we don't need to know; all we need to distinguish for predicting when *denn* (or *auch*) can be used are those answers that confirm the Claim from those that don't, which we can in either case. The difference is that in polar questions, this distinction additionally influences the *form* of

the question, i.e. the choice of p_Q , the ‘question radical’, as it were, whereas in the constituent question case it doesn’t. But, I submit, this is a *side effect* of the meaning of *denn* in polar questions; we do not need to write this form requirement (the positive answer to the polar *denn/auch* question must confirm the Claim) into the use conditions of *denn/auch* explicitly. For it has generally been observed that the form of a polar question is determined by the immediately contextually expected answer (if there is one), see, e.g., Büring and Gunlogson (2000).

That is to say, if I see that you have a full price ticket (or a ticket for the adult movie, for that matter), I will ask you *Are you 18 already?* rather than *Are you a minor?*, even though the two questions are semantically equivalent (i.e., they partition the set of possible worlds in the same way, assuming that minors are 17 and younger always), because the immediate contextual evidence suggests that you are at least 18, not younger. The Claim in our examples plays exactly the role of the immediate contextual evidence, so the fact that our polar questions are formed around the answer that confirms the Claim is simply a consequence of the general conditions that determine the form of a polar question (namely that p_Q is the proposition suggested by the immediate contextual evidence), regardless of whether the question contains *denn*, *aber* or neither of them. As no parallel conditions are, as far as I can tell, observed with constituent questions, no parallel correlation can be seen in those cases.

4.3 More on expectations

Returning, then, to our main discussion, one might think that (16) simply conveys the simpler meaning ‘you know why I’m asking’ as proposed, e.g., in Gutzmann (2008). However, contrast (16) with (17).

- (17) A: Ich habe mit Paul gesprochen. – U: Was hat er (#denn) gesagt.
 I have with P. spoken what has he **denn** said
 ‘A: I spoke to Paul. – U: # Why, what did he say?’

Without further context (or accommodation thereof) inserting *denn* in U’s reply in (17) is infelicitous. But why? A’s utterance clearly begs the question of what Paul said to A, so A should know why U is asking. But, according to our story, using *denn* also signals that the true answer – what Paul said to A – confirms the contextually salient Claim. But all A claimed was that they talked to Paul, so it is unclear what answers to the question ‘What did Paul say’ could confirm or defy that Claim, and no other Claim is salient. Hence using *denn* here seems unmotivated. This shows that there is more to the meaning of *denn* than just ‘You know why I’m asking’.

Furthermore, imagine a different scenario in which U for some reason is

not convinced that A actually spoke to Paul. Against that background, the use of *denn* in (17) become much more natural, the # disappears. Our story explains this: Now A is targeting a Claim of A's, namely that they talked to Paul. The answers to the question, i.e., the content of what Paul said, can now be partitioned into those that consist of things Paul would actually say (according to U) and those that consist of things Paul *wouldn't* say. If A's response falls into the former class, the Claim is confirmed and U might believe that A talked to Paul; if it falls into the latter, U is reassured in their suspicion that the Claim is false, i.e., A and Paul did not talk.

Denn also frequently occurs in *why*-questions. For example, to console little children when they cry, one would prototypically use (18).

- (18) [child crying] U: Warum weinst du denn?
 why cry you **denn**
 'There, there! Why are you crying?'

The effect of adding *denn* here is subtle: it suggests that things are not really as bad (which makes it great for consoling a child, but somewhat condescending when addressed at a crying adult). Here's how can we explain this: The Claim here, made implicitly by the fact that the child is crying, is that the trigger for crying (the 'why') is so bad as to justify crying; the questioner, on the other hand, conveys that they didn't think it was that bad, i.e., the answer to the 'why' question falls in the partition cell of 'not-cry-worthy' triggers; things aren't that bad.

One of my favorite uses of *denn* in a *why*-question occurs in Peter F. Bringmann's 1980 road movie *Theo gegen den Rest der Welt*, where the protagonists at some point believe that they have finally recovered Theo's stolen truck. Upon looking into the driver's compartment, however, Ines exclaims (19) (imagine a Swiss accent if you don't recall the scene).

- (19) Ines: Warum hat der denn das Steuer rechts?
 why has that **denn** the steering right
 'But why is the steering wheel on the right side?'

Analysis: The Claim, clearly, is that the truck is Theo's. The answers to the question can again be partitioned into those that contradict that Claim, among them the true one that the truck they found is a British one, and therefore not Theo's; and those that are compatible with the Claim, which is either the empty set, or consists of such far fetched propositions as 'someone moved the steering wheel in Theo's truck'. Naturally, Ines suspects that the former contains the true answer, as signalled by *denn*; the fact that she even poses the question,

rather than asserting *Aber der hat ja das Steuer rechts!* ('but this one has the steering on the right!'), i.e., is still entertaining the option that the Claim might be true after all, aptly reflects the well-meaning naïveté of the character.

4.4 *Auch* in constituent questions

For completeness' sake I will mention that while *auch* does appear in some constituent questions (though much more selectively than *denn*), I don't see how an extension of *auch*'s use in polar questions, parallel to the one sketched above for *denn*, could be developed for those cases.

The contribution of *auch* in constituent questions can pretty consistently be described as *Selber Schuld!*, 'X brought that onto themselves', where X is the subject of the sentence. Pertinent examples are given in (20).

- (20) a. Warum hast du das auch gekauft?
 why have you that **auch** bought
 'Why would you buy this in the first place?'
 b. Wer geht auch auf so eine Party?
 who goes **auch** to such a party
 'Who would go to that kind of party anyway?'

In case the subject is inanimate, the effect becomes slightly comical, or one has to assume that the people who constructed the subject referent brought it upon themselves. Thus (21), parallel to (19) above, wouldn't seem to make much sense in the scene described.

- (21) #Warum hat der auch das Steuer rechts
 why has it **auch** the steering right
 'Why does it have the steering wheel on the right anyway?'

When pondering (21) longer, I finally imagined a scenario in which Ines drives the truck and slightly brushes oncoming vehicles on her left. In her defense, she would utter (21), suggesting that the damage isn't her fault, but the fault of whoever constructed the truck with the steering wheel on the right.

If we follow the receipt used for *denn* above, we should expect that, e.g., in (20-b), there should be those answers to 'who goes to this kind of party?' that confirm the Claim (whatever the Claim is), and those that don't. Of course one could set the Claim to be something like 'I should feel sorry for those that went to the party', and the two answer propositions 'people I feel for go to this kind of the party' vis-à-vis 'only idiots go to this kind of party', with the latter being the true answer. But I fail to see why only such a specific kind of question should be available for this example. Why, for example, couldn't the Claim be 'this would be a fun party to go to' and the two answers 'charming and beautiful

people go to this party' (corroborating the claim) vis-à-vis 'idiots go to this kind of party' (undermining it)? In the light of this, I will refrain from trying to expand our analysis in this way, and assume instead that these occurrences of *auch* in constituent questions involve a different (though hopefully somehow related) lexeme *auch* than in the polar question cases.¹

5 Directions for further research (a.k.a. your 70th birthday)

5.1 Exclamative polar questions

In what we may call *exclamative polar questions*, addition of *denn* seems to mainly add emphasis or incredulity; *auch* on the other hand is simply infelicitous.

- (22) a. Hast du (denn/#**auch**) den Verstand verloren?!
- have you **denn/#auch** the mind lost
- b. Bin ich (denn/#**auch**) bescheuert?!
- am I **denn/#auch** mad
- c. Bist du (denn/#**auch**) wahnsinnig?!
- are you **denn/#auch** crazy
- ‘Are you/am I out of your mind?’

It seems reasonably clear why *denn* is good in these cases: Clearly, the Utterer would not have previously expected that they or the addressee are out of their minds. But something in the context must have provided the Claim that they are, or at least appear to be, leading to the question. The oddness of *auch* could be explained if *auch*, by its lexical meaning or by scalar implicature in comparison with *denn*, implied that the positive answer (they are out of their mind) was the expected one, because clearly in that case an exclamative (which usually signals surprise) would be inappropriate.

5.2 *Denn* in declaratives

While *denn* is not usually grammatical in declarative sentences (unless used as an initial connector meaning ‘because’), a web search did bring up some natu-

¹Iva Kocač (p.c. October 2023) points out to me that the uses of *auch* in polar questions discussed here may correspond directly to the uses of *eh* in Austrian German (e.g., *Bist (du) eh 18?*, ‘are you **eh** 18?’, in the adult movie scenario), whereas a parallel substitution in the constituent question cases is impossible (*#Warum hat der eh das Steuer rechts?*, ‘why does it **eh** have the steering wheel on the right side?’). Systematic confirmation of this has to await another occasion; but in case there is a contrast, this could be seen as supporting the claim that the two *auchs* in the German German examples are indeed different lexems.

rally sounding examples with our *denn* in environments other than questions, for example (23).

- (23) ‘Die Aachener werden, so das bei einem frommen
the A. will, insofar that with a pious
Kirchenmann **denn** statthaft ist, die Statuten verfluchen.’
church man **denn** proper is, the bylaws curse
‘The people from Aachen/Aix-la-Chapelle will curse the bylaws, **if that is proper** in the presence of a pious man.’

In essence, *denn* in (23) is embedded in an *if* clause, which – not coincidentally I would claim – has a meaning close to a polar question ('is this proper in the presence of a pious man?'). One could indeed argue that there is a prior (or general) expectation that it is *not* proper to curse thusly in the presence of a man of the church, but that now one sees evidence for the claim that the people of Aachen nevertheless will. Similar examples are readily constructed, e.g., (24).

- (24) Wenn sie es **denn** will, werde ich eine Rede halten.
if she it **denn** wants will I a speech hold
‘I will give a speech, if that’s indeed what she wants.’

As indicated by the inclusion of *indeed* in the English translation, what *denn* adds to the conditional in (24) is that the speaker is or was doubtful that she *would* want it, but no concedes that possibility and its consequences (they then would give that speech). Again, this does not seem too different from the use of *denn* in polar questions discussed in the main part of this paper. It raises the question what exactly the conditions are that make *denn* happy in questions and perhaps antecedents of conditionals, but unhappy in declaratives and similar constructions.

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Ideophones across modalities?

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1 Introduction

Many typologically unrelated spoken languages such as Japanese or Akan (Kwa) have been shown to feature a special class of words, so-called ideophones, which have been characterized as “an open lexical class of marked words that depict sensory imagery” (Dingemanse 2019: 16).¹ Ideophones are conventionalized iconic expressions challenging the doctrine that the relation between form and meaning in (spoken) languages is arbitrary. In typical ‘ideophone languages’, ideophones are quite large classes of words that contain marked expressions which are at the same time an integral part of the lexicon and the grammatical system used in everyday language. But even in languages like English and German, which do not belong to the group of ‘ideophone languages’, lexical items such as *plitsch-platsch* (‘splish-splash’) or *ratzfatz* (‘very quickly’) can be characterized as ideophones and are frequently used at least in specific contexts and registers (Barnes et al. 2022, Cwiek 2022). Ideophones are thus available in many different languages and, like iconic co-speech gestures, an interesting example for the impact of iconicity on language. With both iconic meaning aspects enter the semantic representation of the corresponding utterance (Barnes and Ebert 2023). Unlike co-speech gestures, however, ideophones are produced with the same articulators as speech, that is, the iconic depiction and the linguistic description share the same auditory modality.

In this article, we want to broaden the view by asking ourselves whether ideophones are not only attested in spoken languages (to a varying degree) but whether they also exist in sign languages (see Dingemanse 2019 for a similar research question with a different answer), that is, we ask ourselves whether the

¹We would like to thank Enoch Aboh, Kathryn Barnes, Thomas Finkbeiner, Reiner Konrad, Cornelia Loos, Nina-Kristin Meister and the audiences of the DGfS workshop on ideophones and lexicalized iconicity in language, Cologne, the ACLC seminar at the University of Amsterdam, and the special session on the semantics and pragmatics of co-speech/co-sign communication at the Sinn und Bedeutung 28, Bochum, for their valuable feedback and helpful comments.

class of words that has been characterized as ideophone in spoken languages is a universal modality-independent linguistic concept. We show that in sign languages, ideophones are more difficult to identify. The main reason for this is that iconicity (i.e. the depiction of sensory imagery) has a higher impact on sign languages than on spoken languages, both on the lexical and the grammatical level (Perniss et al. 2010, Taub 2012, Emmorey 2014). Nevertheless, we provide evidence that sign languages also use a special class of marked lexical items that share essential properties with ideophones in spoken languages. Consequently, we argue that the development and use of this special class of expressive gestural lexical items is a modality-independent general property of human languages.

The comparison of ideophone-like expressions in the two modalities does not only open new perspectives on the specific formal and functional properties of these marked items but also contributes to a better understanding of ideophones in spoken languages. Likewise, a broad typological investigation of ideophones in both modalities will provide new insights on the impact of iconicity on language in general, and additionally poses new challenges for cross-modal formal semantic theories that take the semantic impact of iconic components on linguistic meaning seriously.

This article is organized as follows: In the next section, we briefly discuss seven key properties of ideophones in spoken languages. Based on this discussion, we turn to the visual modality and show that sign languages also have a special class of signs, so-called ‘idiomatic signs’, that can be compared to ideophones in spoken languages. In the final section, we briefly discuss some consequences of our observations for the structure of the lexicon in spoken and sign languages and formal semantic analyses of the meaning of ideophone-like expressions in the two modalities.

2 Ideophones in spoken languages

Ideophones are well described for many typologically unrelated spoken languages. Comparative studies have shown that ‘ideophone’ is a flexible concept with different characterizing properties that may vary from language to language, that is, a typical ideophone in language A may not share all defining properties of a typical ideophone in language B (Dingemanse 2019). In addition, some languages like Japanese or Akan have many ideophones that are an integral part of the grammatical system and fulfill basic grammatical functions. Other languages such as German and English only have a small class of ideophones which are less integrated in the grammatical system and often restricted to specific contexts or registers. Note finally that even in one language, the class of ideophones is not homogeneous, that is, the grammatical and semantic properties of ideophones may differ from item to item.

Formal and functional descriptions of ideophones in different languages have brought to light at least the following seven key properties, which we illustrate in the following with examples from German (Dingemanse 2012, 2019, Dingemanse and Akita 2017, Barnes et al. 2022, Cwiek 2022, Barnes and Ebert 2023).

(1) *Open lexical class*: Ideophones form an open lexical class. Ideophones must not belong to one syntactic class and the size of this class may differ from language to language. Japanese, for instance, has a large class of ideophones (mimetics). By contrast, in German the class of ideophones is comparatively small.

(2) *Markedness*: Ideophones are marked expressions. They have phonological, morphological and syntactic properties that make them stand out from other words such as, for instance, reduplication – as can be seen in the German examples *plitsch-platsch*, *zick-zack* ('zig-zag') and *husch-husch* ('very quickly').

(3) *Conventionalization*: Ideophones are words and thus conventionalized lexical items with a specific phonological form. Ideophones can be listed in the lexicon and defined on basis of specific grammatical and semantic properties. Like conventionalized descriptive lexical items, ideophones are subject to typological variation. *Splash-splash*, the corresponding English ideophone of *plitsch-platsch*, shares, for instance, the two vowels with its German counterpart but differs in the onset and in the coda.

(4) *Depiction*: Ideophones are lexical expressions that have depictive meaning aspects. As opposed to unmarked descriptive lexical items, ideophones depict rather than describe. The German ideophone *plitsch-platsch* represents, for instance, ironically the sound of wet feet of a moving entity (often accompanied by an iconic gesture of moving wet feet).

(5) *Sensory imagery*: The meaning of ideophones lies in the domain of sensory imagery. They typically encode information about movement and sound. The German ideophone *holterdiepolter* ('helter-skelter') depicts a situation with loud chaotic movement. Ideophones can also depict metaphorically sentiment or mental states such as, for instance, the German ideophones *plemplem* or *ballaballa* ('gaga' or 'crazy').

(6) *Expressiveness*: Ideophones are expressive items which are typically realized with intonational foregrounding and expressive morphology. In addition, ideophones are often accompanied by manual and nonmanual co-speech gestures (Dingemanse and Akita 2017). The depictive meaning components of an ideophone (as well as the accompanying co-speech gesture) contribute expressive meaning. Interestingly, the degree of expressiveness corresponds to the degree of integration: Less integrated ideophones are more expressive (Dingemanse and Akita 2017).

(7) *At-issueness*: Ideophones are often non-at-issue or at least less at-issue than corresponding descriptive words. Barnes et al. (2022) show that adverbial ideophones such as *plitsch-platsch* ('splash-splash') in German make a similar meaning contribution as co-speech gestures and are less at-issue than corresponding conventionalized adverbials: Both contribute non-at-issue information or information which is less at-issue. Note that the degree of at-issueness of ideophones depends on various factors such as the syntactic position, the grammatical function, the conventionalization of an ideophone, the frequency of ideophones in a language and the availability of alternative descriptive expressions. Asiedu et al. (2023) show, for example, that ideophones in Akan are, unlike ideophones in German, equally at issue as conventionalized adverbials. Recall that Akan belongs to the class of 'ideophone languages', which make frequent use of ideophones and where these ideophones are highly conventionalized. Moreover, Barnes et al. (2022) argue that the degree of at-issueness of a particular ideophone in German also depends on frequency and conventionalization, that is, some ideophones in German are more at-issue than others.

We can summarize that ideophones are an open lexical class of conventionalized marked words that depict sensory imagery and typically provide expressive non-at-issue information. The depiction of sensory imagery and the (iconic) expressiveness seem to be two key properties of ideophones in spoken languages. Based on these observations, Barnes and Ebert (2023) argue that ideophones have two meaning components: (i) a conventionalized descriptive meaning component and (ii) an iconic meaning component, which is typically non-at-issue. The second component can be modelled as a gestural demonstration along the lines of Davidson (2015) and Henderson (2016). For the German ideophone *plitsch-platsch*, (i) the first (descriptive) meaning component describes a movement event. (ii) The second (depictive) meaning component adds the non-at-issue information that this movement event is a splashing movement event and that there is a gestural auditory demonstration (the utterance of *plitsch-platsch*), which is similar in the relevant dimensions to the actual movement event the utterance refers to.

So far, we have seen that 'ideophone' is a complex and variable linguistic concept based on at least seven properties. The key property is the depiction of sensory imagery, that is, ideophones are iconic expressions that involve a (context-dependent) gestural demonstration of movement and sound. This depiction of sensory imagery can be modelled as a second (non-at-issue) iconic meaning component which is based on a gestural demonstration. In the next section, we turn to the question whether similar items also exist in sign languages.

3 Ideophones in sign languages?

Linguistic investigations of ideophones in spoken languages have shown that ideophones are attested in many unrelated spoken languages. Even languages like German and English that do not belong to the group of typical ‘ideophone languages’ have a special class of words which share many properties of ideophones in typical ‘ideophone languages’. Since ideophones are used in so many different spoken languages, it is an obvious question whether ideophone-like expressions are also attested in sign languages. Dingemanse (2019), who already discussed this question, did not find evidence that sign languages have a specific class of signs that can be compared to ideophones in spoken languages. In this section, we reexamine this question and argue that sign languages actually do have a corresponding open lexical class of marked expressive signs that depict sensory imagery. As opposed to spoken languages, the depiction in sign languages is, however, obviously not in the auditory but in the visual domain.

We already mentioned in the introduction that sign language counterparts of conventionalized iconic lexical expressions such as ideophones in spoken languages are more difficult to identify. One reason for this is that sign languages have a stronger iconic (gestural) basis than spoken languages – potentially due to the visual-gestural modality sign languages use. Dingemanse (2019: 27) argues that “[v]isible semiotic resources have a broader range of affordances for iconicity, which may make depictions more interpretable even if they veer away from conventionalization.” Different kinds of (visual) iconicity are still visible in the grammar and lexicon of sign languages. Very often, phonological features of signs such as handshape, place of articulation or movement as well as nonmanual features are motivated iconically. Likewise, the grammaticalization of prosodic markers (e.g. for topicalization or sentence-types) and inflectional markers (e.g. plural, agreement or aspect markers) can be traced back to iconic gestural origins. And finally, gestural demonstrations play an important role in the expression of spatial relations using classifier constructions or in reported speech and reported action using role shift (Aronoff et al. 2005, Pfau and Steinbach 2011, Meier 2012, Van Loon et al. 2014, Davidson 2015, Strickland et al. 2015, Goldin-Meadow and Brentari 2017, Schlenker 2018, Steinbach 2021).

Let us illustrate the impact of iconicity on sign languages with two examples: lexical iconicity and gestural demonstrations. Consider lexical iconicity first. It has been argued that many conventionalized lexical signs have manual and/or nonmanual iconic properties, that is, the form of these signs is semantically transparent and partly based on (visual) sensory imagery. Consequently, many lexical signs are to a certain degree iconic in many if not all sign languages (Perniss et al. 2010, Taub 2012). Trettenbrein et al. (2021) conducted a norming

study with more than 300 basic signs frequently used in German Sign Language (DGS). In this study, deaf native signers assigned most lexical signs a (surprisingly) high iconic value (between 4 and 7 on a scale from 1 to 7). Hence, most lexical signs used in this study have transparent iconic features which depict sensory imagery, i.e. a key property which is typical for ideophones in spoken languages. However, it is certainly not the case that unmarked conventionalized iconic signs such as, for instance, *BOOK* and *CAR* in DGS should be analyzed as ideophones in sign languages. Iconicity is thus a necessary but no sufficient criterion for ideophones.

Second, classifiers and role shift are two prominent examples for constructions that systematically combine (conventionalized) linguistic description with gestural demonstrations to express, e.g., the motion or location of an entity in space or the actions of a protagonist in a narration. Both meaning components can be combined simultaneously in one sign (classifiers) or in a sequence of signs (role shift). Recall that the combination of these two meaning components (i.e. a conventionalized descriptive meaning component and an iconic meaning component which involves a gestural demonstration) is again a typical property of ideophones. And again, clearly we do not want to analyze all instances of classifiers and role shift as sign language counterparts of ideophones.

These two observations (many lexical signs have iconic properties and classifiers as well as role shift involve gestural demonstrations) make the identification of ideophone-like expressions in sign languages more difficult. In the previous section, we have shown that one of the key properties of ideophones is the depiction of sensory imagery. As we have seen, in sign languages, this criterion is not sufficient to distinguish unmarked conventional lexical items from marked expressive items such as ideophones. However, both conventionalized lexical signs and gestural demonstrations in classifiers and role shift lack other properties crucial for the identification of ideophones. On the one hand, conventionalized lexical signs such as *BOOK* and *CAR* in DGS are neither marked nor expressive. On the other hand, the depictive gestural demonstrations used with classifiers and role shift are not conventionalized. Therefore, it is important not to focus on the key properties of ideophones alone, but to broaden the perspective and take all properties discussed in the previous section into consideration. In the following, we check whether ideophone-like expressions in sign languages can be identified based on a combination of all seven properties.

Interestingly, there is a special class of signs, which has not yet received much attention in sign language linguistics, that seems to share many if not all properties of ideophones in spoken languages. These ‘special signs’ are usually discussed in the context of sign language teaching and in sign language communities as an important and indispensable part of a competent sign language communication (Konrad 2011).

In the following, we argue that these ‘special signs’ can – to some extent – be analyzed as the sign language counterparts of ideophones. Four representative examples of ‘special signs’ in DGS taken from two DGS calendars (Finkbeiner and Pendzich 2019, 2022) are illustrated in Figure 1:



Figure 1: Four still images of idiomatic signs, © Finkbeiner and Pendzich (2019, 2022)

This class of ‘special signs’ has received different names, depending on which feature the author(s) want to highlight: ‘multi-channel signs’, ‘special signs’ or ‘Spezialgebärden’, ‘polyseme’, ‘Rede-/Gebärdwendungen’ and ‘(signed) idioms’ or ‘idiomatic signs’ (Brennan 1992, Konrad 2011, 2014 Schütte 2014, Wrobel 2017, Finkbeiner et al. 2023: 191–194). Note that some of these names imply a broader denotation and include signs or phrasal expressions that do not correspond to ideophones in spoken languages as defined in Section 2.

The term ‘ideosign’ would be a good new technical term, which could be used to highlight the similarities between ideophones in spoken languages and

these ‘special signs’ in sign languages. However, we decided not to introduce a new term. Instead, we will use the term ‘idiomatic sign’, which is an already established technical term used by the Deaf community and in the context of sign language teaching to refer to the class of ‘special signs’. The main aim of this section is thus to check whether the seven properties discussed in Section 2 also apply to idiomatic signs, i.e. whether idiomatic signs are, like ideophones, an open class of conventionalized marked lexical items (words or signs) that have a depictive expressive meaning component.

(1) *Open lexical class*: Idiomatic signs form an open lexical class which is subject to sociolinguistic variation and open to new additions (Thomas Finkbeiner, p.c.). The DGS dictionary (Kestner 2021) lists 92 idiomatic signs (‘allgemeine Idiome/Redewendungen’) and the DGS corpus 250 idiomatic signs (‘Spezialgebärden’) with more than 4.000 tokens (Konrad et al. 2020, Kestner 2021). In addition, sign language communities as well as dictionary and corpus teams have some informal agreement on the core group of idiomatic signs. Not surprisingly, many idiomatic signs can be found in different compilations and publications with the same formal and functional properties.

(2) *Markedness*: Idiomatic signs are marked expressions. They have a marked phonology which is evidenced especially by a lexically specified mouth gesture and a specific gestural facial expression. In addition, idiomatic signs are often propositional stand-alone elements with a complex context-dependent meaning. Note that the names used by sign language communities and teachers already expresses that these signs – like ideophones in spoken languages – are somehow special (‘special signs’).

(3) *Conventionalization*: Idiomatic signs are conventionalized non-complex lexical items with specific manual and nonmanual features that can be listed in the lexicon and defined on basis of specific grammatical and semantic properties. Like conventionalized descriptive lexical items, idiomatic signs seem to be subject to typological lexical variation.

(4) *Depiction*: Not surprisingly, idiomatic signs have depictive meaning aspects. However, as opposed to unmarked conventional lexical items, the iconic features (especially the iconic nonmanual features) typically contribute an important expressive depictive meaning component. By contrast, with conventional lexical signs, “iconicity seems to play no role in acquisition, recall, or recognition [...] in daily use” (Taub 2012). The iconic properties of BOOK and CAR might have been the gestural basis of the emergence of these signs and signers are still aware of the iconic features (which are still visible in the phonological form of the signs) when asked to rate the iconicity of signs like BOOK and CAR. However, the depictive meaning components are not (necessarily) relevant for the semantic interpretation: These signs simply denote sets of entities without an obvious iconic depiction of size, shape and handling features

of these entities.

(5) *Sensory imagery*: Following Davidson's (2015) theory of demonstration, idiomatic signs can be argued to express a (metaphorical) gestural demonstration of certain aspects of an event including “[...] facial expressions, sentiment and/or gestures” (Davidson 2015). Especially the facial expression and body posture are typical means used in gestural demonstrations (Steinbach 2021, 2023a). Again, for conventional lexical signs, gestural demonstrations are not a relevant aspect of the meaning of these signs. Note that for some idiomatic signs such as the sign illustrated in the left picture in Figure 1 ('time flies'), the gestural demonstration might be motivated by the meaning of spoken languages idioms.

(6) *Expressiveness*: Idiomatic signs have been argued to be particularly expressive (Konrad 2011). They are typically realized with expressive nonmanual phonology (mouth gestures and gestural facial expressions). The specific facial expression, mouth gesture and body posture used in the gestural demonstration seem to trigger intonational and phonational foregrounding of the idiomatic sign (for lexical nonmanuals, see Pendzich 2020). Note that the meaning of idiomatic signs is usually paraphrased and translated into spoken languages with different figurative phrasal expressions.

(7) *At-issueness*: In the previous section, we mentioned that the degree of at-issueness of ideophones depends on various factors such as the syntactic position, the grammatical function, the conventionalization of an ideophone, the frequency of ideophones in a language and the availability of alternative descriptive expressions. Ideophones in Akan are, for instance, more at-issue than ideophones in German. Since idiomatic signs are an integral part of the linguistic system of sign languages and since sign languages frequently integrate gestural demonstrations into the linguistic structure of a sign or sentence, we expect the at-issueness of idiomatic signs to correspond to the at-issueness of ideophones in languages like Akan, that is, idiomatic signs in DGS should be more at-issue than ideophones in German (for a more general discussion, see Steinbach 2023b). However, further empirical studies on the at-issueness of iconic features including sign languages are necessary to decide this issue.

We can summarize that idiomatic signs, like ideophones, are an open lexical class of conventionalized marked signs that (gesturally) depict visual sensory imagery and typically have a strong expressive meaning component. Especially the nonmanual markers (mouth gesture and facial expression) contribute expressive meaning. As opposed to conventional lexical signs, these marked expressive features are an integral part of the meaning of idiomatic signs. The figurative gestural demonstration enters the semantic representation of these signs. Therefore, idiomatic signs cannot be replaced by semantically equivalent conventional signs without a loss of meaning and expressive power.

Because of these similarities, the semantic analysis of ideophones sketched

in the previous section can also be applied to idiomatic signs (Steinbach 2023b). Like ideophones, idiomatic signs have two meaning components: (i) the conventionalized meaning of the sign and (ii) the expressive meaning of the gestural (iconic) demonstration. For the idiomatic sign illustrated in the third picture in Figure 1 (i.e. the ideophone with the meaning ‘no idea’), the first (descriptive) meaning component (i) describes a specific mental state. The second (depictive) meaning component (ii) adds the information that this mental state involves lack of knowledge and that there is a gestural demonstration by the dominant hand and the facial expression which is similar in the relevant dimensions to this mental state.

The second meaning component is what makes idiomatic signs special. Unlike classifiers and role shift, the gestural demonstration is a conventionalized (lexically specified) part of the sign. And unlike conventionalized lexical signs, iconic features enter the semantic representation as part of a gestural demonstration.

4 Modality and demonstration

So far, we have argued that both modalities obviously have an open class of conventionalized marked expressions that combine a descriptive with a depictive expressive meaning component. The iconic features are, however, not sufficient indicators for this special class of signs in sign languages. Nevertheless, the specific expressive status of the depictive features and the iconic enrichment triggered by the corresponding (conventionalized) gestural demonstration distinguishes conventionalized lexical signs from idiomatic signs. Only idiomatic signs involve a lexicalized gestural demonstration that triggers an iconic enrichment. In addition, we indicated that we can provide a modality-independent semantic analysis for marked expressive words (i.e. ideophones) and marked expressive signs (i.e. idiomatic signs) which is based on the distinction between two different meaning components: (i) a conventionalized descriptive meaning and (ii) an iconic meaning involving a gestural demonstration. Note finally, that the second meaning component is a conventionalized part of the meaning of idiomatic signs. Unlike classifiers and role shift, idiomatic signs combine a descriptive meaning component with a fully conventionalized gestural depiction.

The conventionalization of the iconic meaning component provides evidence for a process of lexicalization of gestural demonstrations in spoken and sign languages (for sign languages, see also Cormier et al. 2012). Ideophones and idiomatic signs can be located somewhere in the middle on a continuum from fully lexicalized items to open non-linguistic gestural demonstrations. Unlike free gestural demonstrations in sign language role shift or iconic co-speech

gestures in spoken languages, the gestural demonstration in ideophones and idiomatic signs is lexically specified and thus a conventionalized component of the meaning of these marked expressions. Unlike conventionalized unmarked lexical expressions like ‘book’ in English or BOOK in DGS, this iconic meaning component is an important part of the semantic representation of ideophones and idiomatic signs. Expressions like ‘book’ or BOOK are, in contrast, either completely arbitrary or involve iconic features which do not trigger any kind of iconic enrichment.

In this article, we have argued that ideophones and idiomatic signs involve a component of demonstration and iconic enrichment, which yields expressive meaning and which is less at issue by default. We believe that it is a universal property of language to make use of expressive depictive means, which can be conventionalized into lexical expressions. And this, we argue, is the case for ideophones in spoken languages as well as idiomatic signs in sign languages.

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Phrasal compounds are quotational compounds

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1 Introduction

Phrasal compounds are compounds in which one of the constituents is not a word, but a phrase. Even though phrasal compounds occur in many languages, they are especially productive in German:

- (1) unser [_{CP} Wir wünschen dir alles Gute zum Geburtstag, Katharina]-Aufsatz
‘our [_{CP} We wish you a happy birthday, Katharina] article’

The theoretical characterization of phrasal compounds has proven to be extremely difficult, since phrasal compounds seem to contradict traditional core assumptions about the architecture of grammar. In this paper, we will build on the *quotation hypothesis* which has already been proposed by Wiese (1996), by adding a more elaborated notion of the concept of quotation that has been developed in the semantics/pragmatics and philosophy of language literature. This will enable us to refute all the objections that have been put forward against Wiese’s core ideas. However, we hope to show that the quotation hypothesis – equipped with an appropriate concept of quotation – is not only able to explain phrasal compounds and their special properties, but that it also predicts and explains further peculiarities of phrasal compounds, for which alternative explanations that do not involve quotation cannot offer an explanation.

In the next section, we will present Wiese’s analysis of phrasal compounds as involving quotation and recapitulate the main criticism against the quotation hypothesis, before expanding on the notion of quotation itself and present the theory of quotation developed by Recanati (2001). It is Recanati’s understanding of quotation that we will then employ in Section 4 for the analysis of phrasal compounds as compounds that involve a quotation as a constituent. It is not, we argue, the fact that a part of the compound is phrasal that is special about “phrasal compounds”, but the fact that they contain a *quotation*, which of

course may turn out to be phrasal. For this reason, we think it is better to speak of **quotational compounds** for the phenomena discussed. If our analysis is correct, then every “phrasal compound” is a quotational compound, but not every quotational compound is a phrasal compound; which is why the term quotational compound is the more basic one.

2 Quotation analysis

In his short paper, Wiese (1996) argued that the special properties of phrasal compounds stem from the fact that they involve a quotation (as the phrasal part). In this section, we will first briefly present Wiese’s hypothesis before moving on to the criticism which – as we will show in the course of this article – is based on (falsely) ascribing a too naïve conception of quotation to Wiese’s hypothesis.

2.1 Phrasal compounds contain quotations

Wiese (1996) argues that the phrases in phrasal compounds are quotations. Furthermore, he assumes that quotations involve a special, non-morphological insertion process that makes the structure of the phrase invisible: the internal structure of the quotation is not transparent to the arbitrary context in which it occurs.

Wiese’s quotation theory contains two hypotheses: i) The phrasal part is a quotation and ii) the quotation functions as a word within the phrasal compound. That is, any linguistic expression that is quoted can be used as a morphological head and thus be inserted into a morphological structure. What kind of phrase the quoted expression originally was is not visible to morphology; it is only visible that it is another head. While quoted material can generally have an internal structure – in the case of quoted phrases that would be a syntactic structure – this structure is irrelevant for the morphological insertion process. While Wiese does not make it explicit, it is clear from his paper that he considers quotations to be “extra-linguistic”; an aspect that we will elaborate on below.

If one follows Wiese (1996) in his assumption that the phrasal component of phrasal compounds is a matter of quotations, then, so he argues, the problem of phrasal compounds – i.e. that a morphological expression contains syntactic structures – is only a superficial problem since the syntactic structure is not actually part of the morphological structure. In fact, with quotation, many aspects can become part of a morphological expression, like expressions from a different language (2-a) or even non-linguistic material like symbols or images (2-b), or, in spoken language, sounds (2-c).¹

¹We use the brackets “[...]” to indicate that a gesture or sound is being produced.

- (2) a. Zur ‘**laissez faire**’ **Haltung** in der Erziehung passt dann konsequenter Weise auch die ‘**C'est la vie**’ **Haltung**
 ‘Consequently, the ‘**C'est la vie**’ **attitude** also goes well with the ‘**laissez faire**’ **attitude** in education.’
<http://www.raumzeitwellen.de/spacewave-it/kapitel08.htm>
- b. Die ♥-Gruppe spielt gegen die ♥-Gruppe.
 ‘The ♥-group plays against the ♥-group.’
- c. Das [krrrrrp]-Geräusch hat mich wachgehalten.
 ‘The [krrrrrp] sound kept me awake.’

The same way that quotation can make non-linguistic or foreign material available for word formation, quotation can also make phrasal material available for word formation. That is, the phrasal constituent of a phrasal compound is not part of the morphological structure – just like the signs, gestures, and sounds in (2) are not part of German morphology. In this way, the quoted material can be made available for word formation as a lexical category – with an invisible inner structure.

This summarizes the basic assumptions of Wiese’s quotation hypothesis and outlines how his approach can explain phrasal compounds without having to redesign the grammatical architecture. As mentioned above, the quotation theory consists of two theses. The phrasal part is a quotation and the quotation functions as a word within the phrasal compound. Against both hypotheses, counter-arguments have been put forward in the literature. We will now present these objections before then refuting them in the remainder of this paper.

2.2 Quotation status of the first constituent

One argument that is often issued against Wiese’s quotation put forward in the literature is that not every phrase in a phrasal compound was actually uttered before and that it is therefore implausible that the phrasal material is a quotation. This is because even though the first constituent often contains fixed phrases or something that was actually said, it often involves without a doubt a completely new phrase (Meibauer 2007: 240).

We can agree with this criticism against the quotational approach insofar as we agree with the data: the phrasal elements in phrasal compounds are in the vast majority of cases neither quotations from previous utterances nor fixed phrases anchored in the lexicon. However, where we strongly disagree with the conclusion that the quotation analysis fails because of this; at least if one uses a more sophisticated concept of quotation which goes beyond the mere reproduction of what has already been said. We will propose such a concept of quotation in § 3.

2.3 Word status of the first constituent

Another argument against the quotational approach targets the hypothesis that the phrasal component has the status of a word within the compound. In German, compounds typically involve a linking element (LE), i.e. some phoneme (that often looks like a plural or possessive marker but isn't one) that links the parts of the compound. According to Toman (1985: 430), however, linking elements supposedly do not occur in phrasal compounds, as the examples from Lawrenz (2006: 10) show.

- | | | | |
|-----|--|-----|---|
| (3) | a. das Kriegsspektakel
‘the war spectacle’ | (4) | a. der Hemdsärmel
‘the shirt sleeve’ |
| | b. das Kalte-Krieg-Spektakel
‘the cold war spectacle’ | | b. die Letzte-Hemd-Anleihe
‘the last shirt bond’ |

Whether this argument that LE sometimes do not occur in phrasal compounds is actually a good counterargument, the data is not as clear-cut as sometimes suggested. For instance, the examples in (5) from Lawrenz (2006: 6) contain linking elements. We come back to linking elements later in § 4.2.

- | | | |
|-----|--|--|
| (5) | a. Gehobene-Stimmungs-Effekt
‘elevated mood effect’ | b. Furcht-vor-Erfolgs-Inhalte
‘Fear of success content’ |
|-----|--|--|

Another argument against the word status of the phrasal part is that the components of a compound are usually so-called anaphoric islands (Meibauer 2003, 2007). Using pronouns in order to anaphorically refer back to parts of a word should not be possible, as the examples in (6) illustrates.

- | | |
|-----|---|
| (6) | *Jedes Mutter_i söhnchen möchte am liebsten für immer bei ihr_i wohnen bleiben.
Intended: ‘Every mama_i ’s boy would like to stay with her_i forever.’ |
|-----|---|

Phrasal compounds, on the other hand, sometimes allow anaphoric reference to their components. In (7) it is possible to pronominally refer back to *Mama* ‘mum’, which is part of the phrasal first constituent of the compounds.

- | | |
|-----|---|
| (7) | Jeder Meine- Mama_i -ist-die-Beste-Sohn möchte am liebsten für immer bei ihr_i wohnen bleiben.
‘Every my mom is the best son would like to be with her_i forever.’ |
|-----|---|

In this way, phrasal compounds seem indeed to behave differently from ordinary compounds. However, as we will show below in § 4.2.2, the quotational approach to phrasal compounds can explain this difference while retaining the assumption that the phrasal part functions as a word inside the compound.

3 Elaboration of the concept of quotation

It seems apparent that the first line of argument against Wiese's (1996) quotation hypothesis is based on a too naïve rendering of the notion of quotation. The criticism is based on the assumption that there must be an "original utterance" for something to be a quotation – be it in the form of a concrete utterance or in the form of general clichés or statements which are then quoted. Under this understanding, quotation would be limited to a type of reported speech (in the broader sense). However, Wiese (1996: 188) himself points out that he has a more abstract, more complex concept of quotation in mind to "allow a wider domain of application".

In order to spell out a more elaborate concept of quotation in more detail than Wiese did in his brief remarks, we employ an understanding that is quite common in recent works in philosophy of language and which has been developed by Recanati (2001) in his influential paper on *open quotation*. According to his analysis, quotations are *linguistic demonstrations*. Just as you can demonstrate dance steps, for example, you can also demonstrate something by producing verbal material. Following Recanati, we understand demonstration here in the sense of Clark and Gerrig (1990): Something is demonstrated in order to make certain aspects of what is demonstrated experienceable.

- (8) Paul guckte mich total planlos an. [Sprecher* in schneidet eine Grimasse.]
 Der checkt einfach gar nichts.
 'Paul looked at me totally aimlessly. [Speaker makes a face.] He just doesn't get anything.'

Just like how the non-linguistic demonstration in (8) is used to make certain aspects of Paul's baffled look experienceable, language itself can also be used to demonstrate something as in (9). Such cases of verbal demonstration are quotations.

- (9) Und dann hab ich ihm endlich meine Meinung gesagt. "Das ist doch Bullshit!" War der vielleicht geschockt!
 'And then I finally told him my opinion. "That's bullshit!" How shocked he was!'

For all demonstrations, it is not always obvious what the relevant aspects of the demonstration are. Is only the facial expression of the demonstrated grimace relevant or also how the speaker tilts his head? In case of (9), is it just what is said or also the specific pronunciation and intonation? Are the exact words relevant or just the approximate content of what they express? This is what Recanati calls the "target" of the demonstration and which must be inferred by the addressee, involving a lot of pragmatics (Gutzmann 2007, Gutzmann and

Stei 2011).

Recanati (2001) distinguishes in his paper between *open* and *closed quotations*. Open quotations are those in which the material being demonstrated appears “freely” and the demonstrated material has the same linguistic status as if it were not quoted at all. The quotation in (9) is therefore an open quotation, just like that in (10-a) below. In contrast, a quotation is closed if the quoted material is not only demonstrated, but the entire demonstration is “linguistically recruited” (Recanati 2001: 649) and fills a nominal slot in the overall sentence. The quotation in (10-b) is therefore a closed one, where the underline indicates the nominal slot that is filled by the quoted material.

- (10) a. ‘O Lou! “No one likes me and everyone is mean to me!” Just stop with this nonsense!’
 b. ‘Lou said: No one likes me and everyone is mean to me!’

Important for our purposes is the observation that the grammatical status of the quoted material is irrelevant in closed quotation. Regardless of what is quoted in closed quotations, the slot into which the material is linguistically recruited is always the same. That is, in closed quotations, the linguistic structure of the quoted material is invisible to the surrounding linguistic material into which it is recruited. In this sense, closed quotations are opaque or intransparent, whereas open quotations are transparent.

It is important to note – and this applies to all types of quotation and demonstration – that the quoted/demonstrated material itself is *not part of the utterance*. The quoted material is, in a sense, outside of the sentence, an idea also found in Davidson’s (1979) quotation theory, although it differs in many important aspects from Recanati’s approach. It is only through the “linguistic recruitment” that is involved in closed quotation that the demonstration can fill a slot inside the utterance and the resulting “singular term” then acquires a referential meaning. What is exactly the reference depends again on the target of the demonstration.

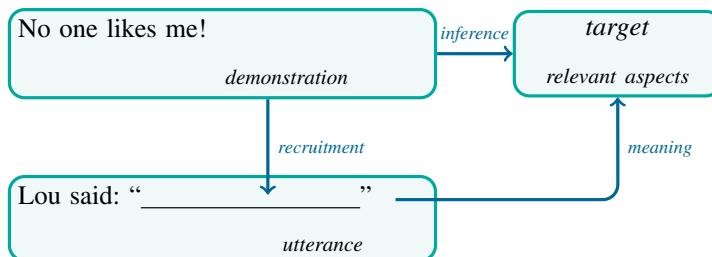


Figure 1: Levels of meaning in closed quotations

The graphic in Figure 1 illustrates this. First, there is the meaning of the linguistic material that is being demonstrated: The phrase *no one likes me!* has a linguistic

meaning. The demonstration “No one likes me!” itself also has meaning. This “target” has yet to be inferred, because it is not yet clear by the demonstration alone what the speaker is trying to get at. The third level is added through the linguistic recruitment of the demonstration into a linguistic utterance: the quotation refers to the target and thus acquires a referential meaning.

This concludes our brief outline of Recanati's (2001) theory of quotation.² Even if our presentation has left out many of the subtleties of his analysis, it should be clear that the resulting notion of quotation is much more elaborate and broader than a simple understanding of quotation as "referring to a previously made utterance". In fact, the concept of an "original utterance" does not play any role in this theory of quotation. In the following section we will therefore apply this new concept of quotation to phrasal compounds and show how it can reject the original arguments of Wiese's (1996) approach.

4 Quotational compounds

Equipped with Recanati's concept of quotations, we now employ it for elaborating Wiese's (1996) ideas. Our thesis, like Wiese's, is very simple: the phrasal components in phrasal compounds are quotations. And since, as we argue, what is actually special about these compounds is precisely the fact that they involve quotation – that they can also contain phrases is a by-product of the fact that, of course, phrases can also be quoted – we suggest that they should rather be called *quotational compounds*.

4.1 Quotational compounds and kinds of quotation

We can make our thesis even more precise: quotational compounds contain *closed quotations*. First, the phrasal material obviously fills a slot in the compound; the quotation is hence linguistically recruited. Secondly, as discussed above, the syntactic category of quoted material is irrelevant and does not play any role in the composition of compound; which also speaks for the quotation being closed. We can also be more precise in this regard as well, because grammatically speaking, closed quotations are nouns, as Pafel (2007, 2011) has convincingly shown (for pure quotations). The following examples illustrate that, for instance, closed quotations can occur with determiners (11-a) or with plural morphology (11-b).

- (11) In jedem seiner Sätze kommen mindestens zwei ‘natürlich’ vor.
 ‘In each of his sentences there are at least two ‘naturally’.’
 (Pafel 2007: 202)

²For further discussions of Recanati's approach, see Gutzmann (2007), Recanati (2009).

- (12) His speech abounded in many **I think so's.**

(Clark and Gerrig 1990: 771f.)

Interestingly, the assumption that, qua being a closed quotation, the phrasal part in a quotational compound has nominal status corresponds to the assumption that Gallmann (1990) made for his analysis of phrasal compounds: The phrasal constituent is obtained by converting “any speech segment” to a noun. In this respect, our quotation analysis can directly be connected to Gallmann’s conversion analysis: The “conversion of any linguistic expression” described by Gallmann corresponds in our approach to a closed quotation, which is a process that also results in a noun as its output.³ However, the key difference between Gallmann’s conversion analysis and our quotational analysis is that his conversion is a morphological process that transforms a non-morphological structure into the word. Our approach appears to be very similar, but is conceptually very different: quotation, i.e. linguistic demonstration, and “linguistic recruitment” is *not* a morphological process. Instead, like non-linguistic demonstrations, quotation is a *non-linguistic process* that can be employed by language (Harth 2002): Extra-linguistic material – which in the case of quotation just happens to be linguistic as well – is made linguistically accessible and integrated by the demonstration. Again: It is the quotational status of the phrasal material that is special, and not the fact that the quoted expression is phrasal.

4.2 Quotational compounds and the word status argument

The second thesis involved in Wiese’s approach is that quoted material behaves as a word in quotational compounds. In the following, we will show that the objections to this thesis are not really valid when one takes the quotational analysis seriously.

4.2.1 Quotations and linking elements

In § 2.3, we have already shown that this counter-argument is not a very strong one, because there are examples of quotational compounds that can contain linking elements (5). In addition, there are usually no linking elements in other quotational compounds in which the quoted material is not phrasal either. In (13), a single letter is quoted and the resulting quotational compound (clearly not a phrasal compound) cannot contain a linking element.

³See also Pafel (2011: 260), who analyses pure quotations as being formed by *generalized conversion*.

- (13) a. K-Taste 'K key' b. *Kn-Taste '*K key'

Similarly, compounds involving material from a foreign language as in (14-a), arguably are also quotational compounds, even if they do not involve phrasal material. Example (15-b) shows that no linking element can be used in this case. In contrast, the comparable compound that does only involve a native expression and hence does not involve a quotation in (15-c) can contain a linking element.

- (14) a. Movement-Regel ‘movement rule’
b. *Movements-Regel ‘*movement rule’
c. Bewegungsregel ‘movement rule’

This shows that it is not the phrasal status of the first member that accounts for the absence of linking elements in many phrasal compounds, but the fact that it is quoted.

4.2.2 Quotations and anaphora

The second argument against the word status of the phrasal part we touched on above is that, in general, anaphors cannot refer to constituents of compounds but, as illustrated by (7), there are phrasal compounds that allow such anaphoric reference. The quotational analysis offers an explanation for this. Recall that according to the quotation hypothesis, the phrasal material is not part of the word itself; it is merely demonstrated. In fact, they refer to aspects of the demonstration. This is possible with demonstrations in general, as the following example illustrates.

- (15) A: Und dann kam [Gesten und Bewegungen, die Lou_i imitieren].
 'And then came: [gestures and movements imitating Lou_i]'.
 B: Oh, ich habe sie_i heute auch schon gesehen.
 'Oh, I saw her_i today, too.'

Cases in which there appears to be an anaphoric reference to the phrasal part of a quotation compound work the same: The reference is not to parts of the word (which are not even really part of the utterance), but to aspects of the linguistic demonstration.

- (16) Damals wurde die **Gott_i**-ist-tot-Thematik in allen Zeitungen diskutiert, aber wir glaubten nicht daran, dass **er_i** tot ist.
 ‘At that time, the **Gott_i** is dead topic was discussed in all the newspapers, but we didn’t believe that **he_i** was dead.’ (Meibauer 2007: 243)

In this example, it seems as if the pronoun *er* refers to *Gott* ‘God’, which is part of the phrasal component of the compound *Gott-ist-tot-Thematik* ‘God-is-dead topic’. In fact, this pronoun refers to aspects of the linguistically demonstrated

expression *Gott ist tot*, which, as a demonstration, is an extra-linguistic object. Since the expression *Gott* is part of the linguistic (but nonetheless extra-linguistic) demonstration, the demonstration can still make the reference of the expression *Gott* available as a discourse referent if the content of the phrase *Gott ist tot* (and not just its syntactic form) is the target of the quotation. This means that the pronoun *er* in (16) refers to the discourse reference provided by the target of the demonstration and not to parts of the compound. Figure 2 illustrates this.

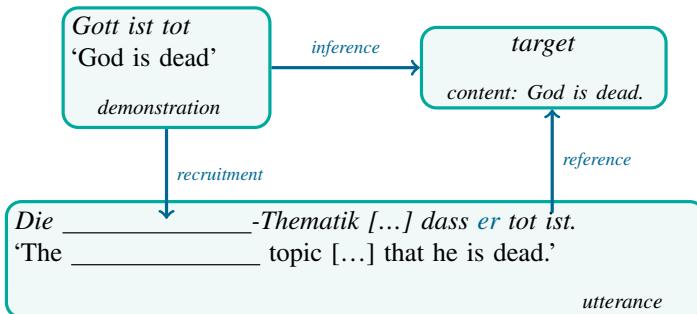


Figure 2: Meanings of demonstration & anaphors in example (16)

That the quoted material is not part of the structure itself can be illustrated by the observation that configurations that would usually result in principle C violations are possible when quotations are involved (see Pafel 2011: 263f.).

- (17) a. Sie hat, wenn der Satz “Katharina Hartmann ist Institutsleiterin und Dekanin” wahr ist, beide Ämter inne.
 ‘She has both positions if the sentence *Katharina Hartmann is institutue director and dean* is true.’
- b. *Sie_i hat, wenn Katharina Hartmann_i Institutsleiterin und Dekanin ist, beide Ämter inne.
 ‘She has both positions if K. H. is institute director and dean.’

What is interesting for our purposes is that a similar contrast can be observed for phrasal compounds that contain proper names.

- (18) a. *Katharina_i hat etwas gegen die Rufe nach Katharin_i Ernennung zur Dekanin.
 ‘Katharina has something against the calls for Katharina’s appointment as dean’

- b. Katharina hat etwas gegen die Katharina-soll-Dekanin-werden-Rufe.
 ‘Katharina has something against the Katharina-should-become-dean calls.’

These structural considerations all show that the quotation is not really part of the morphological or syntactic structure in which it occurs, even if it can make discourse referents available for anaphora. That is, the fact that reference to parts of the compound is possible is actually an argument in favor of the quotation theory as such reference is expected to be possible under this analysis.

4.3 Quotations and indexicals

Having refuted the previously mentioned criticisms of Wiese’s (1996) quotation hypothesis, we will now provide an additional positive arguments for it, which is not really discussed in the literature: It can be observed that indexicals within phrasal compounds do not refer to aspects of the current context, as usual, but refer instead to a shifted context.⁴

- (19) Dieser Meine-Mama-ist-die-Beste-Kerl ist total unselbstständig.
 ‘This my-mom-is-the-best guy is totally dependent.’

In this utterance, the indexical first-person possessive pronoun *meine* ‘my’ refers to the mother of the referent of the head noun *Kerl* “guy” and *not* to the speaker’s mother, which would be the expected referent. There is obviously a so-called context shift at work in (19), since the interpretation of the indexical is not fixed by the utterance context, but by a derived context in which the referent of *Kerl* “guy” is the speaker and expresses something like *Meine Mama ist die Beste* ‘My mom is the best’. Such context shifts are actually assumed to not occur outside of *quotations* (cf. Kaplan 1989), which can induce context shifts in general and not just in phrasal compounds:

- (20) a. Der unselbstständige Kerl sagte: “Meine Mama ist die Beste!”
 ‘The dependent guy said: “My mom is the best!”’
 b. Lou sagte: “Jetzt bin ich hier!”
 ‘Lou said: “I’m here now!”’

A context-shifted interpretation of indexicals in quotational compounds is not restricted to first person pronouns but can similarly be attested, for example,

⁴Meibauer (2007: 244) used a few examples with indexical expressions in the context of the discussion of anaphoric binding, but does not address the deferred reference of indexicals, which is precisely the argument for a quotation analysis.

for 2nd person possessive pronouns or for temporal and local indexicals such as *now* and *here*.

- (21) Immer wenn Lou reinkommt, setzt sie ihren **Jetzt-bin-ich-hier**-Blick auf.

‘Whenever Lou enters the room, she puts on her **now I am here** look.’

The quotational analysis can, obviously, explain this data directly; it even predicts that quotational compounds allow such context shifts, whereas the shifted interpretation of indexicals poses a problem for explanations that do not involve quotations.

5 Summary

In this paper, we tried to reestablish Wiese’s (1996) quoation analysis of phrasal compounds by linking it to Recanati’s (2001) theory of quotation. According to the view we advocated for, the phrasal components in phrasal compounds are closed quotation. This means that the linguistic material that is quoted is not part of the linguistic expression; it is a demonstration which is linguistically recruited such that it fills a nominal slot within the compound. That is, what is special about phrasal compounds is that they contain a quotation (which just happens to be a phrasal expression). That is why we propose to speak of them as *quotational compounds* as a more general term which encompasses phrasal compounds. As we showed, our approach overcomes the objections to Wiese’s original approach and can explain atypical properties of phrasal compounds, such as the frequent lack of linking elements or the possibility of anaphoric reference. It can also explain the occurrence of the shifted interpretation of indexicals; something that alternative approaches cannot explain without further assumptions (that most likely have to involve quotations as well). Hence, the “That’s all quotations” thesis is correct after all!

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Against *wohl* in ForceP

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1 Introduction

This short article takes issue with the syntactico-semantic solution that Zimmermann (2004) has developed for the evidential or epistemic German discourse particle *wohl* ‘supposedly’ as in (1).

- (1) Katharina wird doch wohl 50 und nicht 60, richtig?
‘Katharina is turning 50 and not 60, right?’

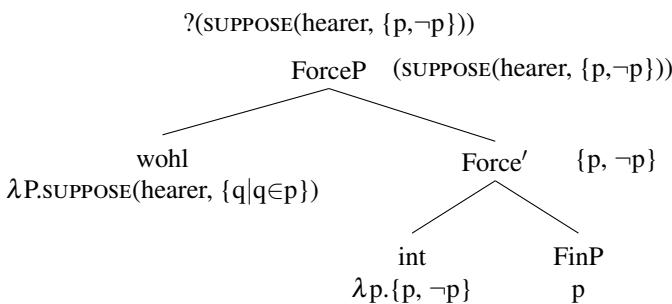
Zimmermann (2004) proposes an LF movement account where *wohl* moves to ForceP. I present evidence to the effect that this cannot be the case. What I propose instead is that Force/C informs T so as to provide the right semantic object further down such that *wohl* can perform its duty in its surface position.

2 Zimmermann (2004)

Zimmermann (2004) follows a trend prominent in the formal semantics literature to have evidential, epistemic or mirative markers interact with the speech-act encoding ForceP (Rett and Murray 2013 and work based on this). While Rett and Murray (2013) remain silent about the exact syntactic implementation, Zimmermann (2004) bites the bullet and proposes that the German evidential or epistemic particle *wohl* is not interpreted in its surface position following the inflected verb in main clauses, but LF-moves to SpecForceP to do its Force-interaction work there. In this position all the right categories would seem to be available. (3) renders Zimmermann’s (2004: 22) compositional derivation of relevant portions of a question with *wohl* as in (2) (I removed a faulty question mark in the second highest denotation of (3)).

- (2) Hat Katharina wohl auch ihren Ex-Chef eingeladen?
‘Did Katharina *WOHL* invite her ex-boss, too?’/‘Do you suppose Katharina invited her ex-boss, too?’

(3)



The Force head *int* in (3) converts the *p* denotation of *FinP* into a question radical, the set of *p* and $\neg p$. Then the commitment downtoner in *SpecForceP*, the denotation of *wohl*, results in a denotation stating that the hearer supposes *p* or $\neg p$. The speech-act question operator in the highest line converts this into a full-blown question denotation, a question which asks whether the hearer supposes *p* or not *p*.

Let us note two things for what is coming. First, the introduction of the set containing *p* and $\neg p$ and the introduction of the question operator are not in complete adjacency. The *SUPPOSE* operator intervenes. Second, there is no constituent corresponding to the question operator ?. In Zimmermann's (2004) work, the latter peculiarity is not so visible, as the denotation of *ForceP*, unwarrantedly, already has this operator.

3 Problems with the LF movement account and a solution

In this section I will present a problem that Zimmermann's (2004) account for *wohl* faces, and I will reinstantiate the view that *wohl* indeed takes scope in its surface position. We will note a dilemma that results from this surface-orientedness, and I will sketch a solution for it.

Zimmermann's (2004) account works beautifully, and it has become popular in the literature on German (cf., recently, Tan and Mursell 2022). Nonetheless there are some very basic facts that are incompatible with it. Consider (4).

(4) Zum Glück feiert Katharina wohl am 13. Februar.

'Fortunately, Katharina will supposedly party on February 13.'

It is clear beyond doubt that the adverbial *zum Glück* 'fortunately' takes scope over *wohl*. (4) means that it is fortunate that Katharina will supposedly party on that date. It does not mean that the speaker supposes that it is fortunate that Katharina will do that. Cinque's (1999) order of his highest I-level categories (better dubbed low C domain categories; Bross and Hole 2017) makes

us expect this scope order. Now, if *wohl* LF-moved to ForceP, then *zum Glück* would have to move along to a position above *wohl*'s landing site to yield the correct reading. The problem doesn't get better with (5).

- (5) Ehrlich gesagt feiert Katharina zum Glück wohl am 13. Februar.
 ‘Frankly speaking, Katharina will fortunately supposedly party on February 13.’

On Zimmermann's account, both *zum Glück* and the speech-act adverbial *ehrlich gesagt* ‘frankly speaking’ would have to move after *wohl* now to render the correct reading. I deem this to be highly unlikely and draw the conclusion that *wohl* takes scope in precisely that position in which we find it at the surface; a low C-level position (Struckmeier 2014).

This conclusion comes with a big problem. Recall that Zimmermann's (2004) account elegantly derives the behavior of *wohl* in ‘yes/no’-questions. To this end, he has *wohl*'s denotation interact with the correct semantic object for questions: the set of p and its negation $\neg p$. It would appear that this is what the Force head (Rizzi 1997) yields after computation with its sister, and this is precisely how Zimmermann designs his analysis. This leaves us with a huge dilemma. On the one hand *wohl* cannot be in ForceP, because it takes scope below this category. On the other hand *wohl* would seem to have to be in ForceP, because that is where the right semantic object for questions – {p, $\neg p$ } – becomes available.

Here's a way out of this dilemma. If Force/C informed T about it being a ‘yes/no’-question, then T could generate the desired semantic object in TP and hand it on upwards. Force would then, and this is what Zimmermann achieves without a constituent performing this job, be a function from contexts to contexts (Truckenbrodt 2006). Note that it is quite common to assume that C and T communicate (indirectly in Kratzer 2009, directly in van Koppen 2017, and many before him who have investigated complementizer agreement). In the end, this is what phases are good for (with VoiceP and CP/ForceP being clear phases, and protracted shipping to the interfaces in-between). As said a moment ago and with these adjustments in place, the head of ForceP is now free to host the constituent that converts (SUPPOSE(hearer, {p, $\neg p$ })) into ?(SUPPOSE(hearer, {p, $\neg p$ })).

4 Conclusions

It was really funny how Katharina and I became befriended. We are both friends with DB, and that's why we traveled to his wedding in L.A. in the noughts. We only understood this afterwards, it was a fake wedding. They had gotten married beforehand, then medical beauty benefits had applied to

D's wife, and then they invited people to their fake wedding. Katharina and I were furious when we found out. However, the two of us went hiking in some nameless mountains near L.A. after the “wedding”, and we had the greatest time there.

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Che cazzo di articolo di merda!

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1 Introduction

This paper focuses on a few unexpected morphosyntactic properties of some expressive structures in Italian. These structures involve lexical items such as *cazzo* ‘dick’ and *merda* ‘shit’, which can occur in the so-called binominal *N-of-N* construction (Aarts 1998, Napoli 1989, Español-Echevarría 1998, Den Dikken 1998, 2006, Doliana 2015, 2016, Masini 2016). Such constructions convey an emotional attitude of the speaker toward the referent denoted by the NP they cooccur with. For instance, in order to express a negative evaluation of a paper, one might say something like (1-a) or (1-b):

- (1) a. Che cazzo di articolo!
what dick of paper
b. Che articolo di merda!
what paper of shit
‘What a shitty paper!’

We refer to nouns like *cazzo* and *merda* as the expressive noun (henceforth ExprN) (Potts 2007), while *articolo* ‘paper’ is the referential noun (henceforth RefN). As we see in (1), in Italian the ExprN can either precede (1-a) or follow the RefN (1-b).

In this paper, we look at two different expressive nouns in Italian: *cazzo* ‘dick’ and *merda* ‘shit’. These two nouns are representative of classes with more members, and they do not exhaust the typology of Italian ExprNs. For instance, ExprNs of the *cazzo*-type include *cavolo* ‘cabbage’, *minchia* ‘dick’, and *accidenti* ‘curses’.¹ Other classes that can be identified include *coglione* ‘asshole’, *madonna* ‘virgin’, and *diavolo* ‘devil’. These ExprNs show different behaviours, but we shall not discuss them here (see Giorgi and Poletto 2021b for discussion of these additional types).

¹We were not able to identify other members of the *merda*-type class, but we cannot exclude their existence.

An influential analysis of the binominal *N-of-N* construction takes the ExprN to be an underlying predicate. In this paper, we show that certain empirical properties of *cazzo* class of ExprNs do not follow from this analysis, suggesting that, at least for this class of ExprNs, the predicate analysis is incorrect. We discuss these properties in Section 2. The properties in question are the inability of *cazzo* to appear in predicative position (Section 2.1), its stacking properties when the two types of ExprNs are combined (Section 2.2), and its agreement properties (Sections 2.3 and 2.4). We propose an analysis in Section 3.

The data and acceptability judgements have been produced by Cavigrani, or extracted from the web or the literature. The judgments on the constructed examples have been confirmed with other Italian speakers.

2 The data

2.1 Predicative position

Analyses of the binominal *N-of-N* construction in terms of predicate inversion take the ExprN to be an underlying predicate (Bennis et al. 1998, Den Dikken 1998, Español-Echevarría 1998; for an alternative analysis of Italian *N-of-N* constructions, see Napoli 1989 and Masini 2016). In this respect, it is surprising to find that not all ExprNs can occur predicatively. As shown in (2-a), whereas *merda*-type ExprNs can occur predicatively, the *cazzo* type cannot. The only way to use this item predicatively is to embed it in a construction headed by *testa* ‘head’, or to add a derivational suffix like *-on-*, which derives person-denoting nouns (2-b).

- (2) a. Quel professore è una merda / *un cazzo!
 that professor is a shit / a dick
 ‘That professor is a shit/a dick.’
- b. Quel professore è una testa di cazzo / un cazz-on-e!
 that professor is a head of dick / a dick-ANIM-M.SG
 ‘That professor is a dickhead / bonehead.’

By adding the suffix *-on-*, *cazzo* shifts to the class of ExprNs to which also *cogli-on-e* ‘asshole’ belongs. This class is characterised by the presence of the suffix *-on-* in the ExprN. In line with the properties of this suffix, ExprNs with *-on-* need to refer to a human referent.

2.2 Stacking

Another – hitherto underexamined – property of this construction is the fact that ExprNs are stackable, i.e. it is possible to combine two ExprNs with one

RefN, which has the interpretive effect of intensifying the negative evaluation:

- (3) a. Che **cazzo** di articolo di **merda**!
what dick of article of shit
- b. Che **cazzo** di **merda** di articolo!
what dick of shit of paper!
'What a fucking shitty paper!'

In (3-a) the two ExprNs (**bold**) occur on either side of the RefN, whereas in (3-b), they are stacked in a position preceding the RefN.

There is also the possibility of the two ExprNs following the RefN:

- (4) a. ?Che articolo di **merda** del **cazzo**!
what article of shit of.the dick!
'What a fucking shitty paper!'
- b. *Che articolo del **cazzo** di **merda**!
what article of.the dick of shit!

The examples in (4) reveal an ordering restriction: despite its degraded status, the one in which *merda* is closer to the RefN (4-a), is better than that in which *cazzo* occurs between the RefN and *merda* (4-b). The same restriction holds when both ExprNs precede the RefN, as in (3-b), where the order of the ExprNs cannot be reversed.

These cases of stacking, as well as the ordering restrictions we observe, arguably represent an additional problem for predicate inversion analyses. Assuming the ExprN to be an underlying predicate, we would need to assume a recursive structure, along the lines of (5):

- (5) [[articolo merda] cazzo]

Inverting the predicate *merda* with its subject *articolo*, and then *cazzo* with the complex of *articolo* and *merda*, could then lead to the word order of (3-b) above. The problem with such an approach is that (5) is not a very plausible underlying structure from a semantic point of view, since it corresponds to something like 'the fact that the paper is a shit is a dick'. This is quite different from the actual meaning of cases of stacking of ExprNs, which merely serve to intensify the strength of the emotion of the speaker. The second problem with this analysis is that it does not explain any of the ordering restrictions that exist when multiple ExprNs are stacked, since there is nothing that would prevent an underlying structure with a different order, i.e. [[articolo cazzo] merda].

2.3 Transparency

A property of the expressive *N-of-N* construction that has received some attention in the literature is that of the apparent (in)visibility of certain morphosyntactic features of the ExprN for syntactic agreement processes (Doliana 2015, Giorgi and Poletto 2021a,b, Saab 2022b). These features in certain cases appear to be either absent or syntactically inactive. In the following Spanish example (from Saab 2022b: 362), the F gender feature of the ExprN shows this behaviour:

- (6) el gallina de Andrés
the.M.SG chicken.F.SG of Andrés.M.SG
‘that chicken Andrés’

The M determiner *el* agrees with the M RefN *Andrés* rather than with the closer, F ExprN *gallina* ‘chicken’. As a theory-neutral term, we shall use the concept of transparency to refer to this property of ExprNs. In Italian expressive constructions, *cazzo*-type ExprNs are typically transparent for agreement, while *merda*-type ExprNs are not. We discuss this separately for the features GENDER and NUMBER below.

2.3.1 GENDER

A GENDER mismatch can be observed in (7), where the GENDER feature of the DEM *quella* agrees with that of the F RefNs *lettera* across the ExprN *cazzo*.

- (7) quella cazzo di lettera
that.F.SG dick.M.SG of letter.F.SG
‘that fucking letter’

Thus, ExprNs of the *cazzo*-type are transparent for gender agreement. This is not the case for *merda*-type ExprNs, though, as the latter cannot be bypassed by the GENDER probing D. This is shown in (8-a) and (8-b).²

- (8) a. quella merda di articolo
that.F.SG shit.F. of paper.M.SG

²Examples of transparent *merda* are marginally attested, as shown below with a string found on social media, where the M indefinite article *un* agrees with the M RefN bypassing F *merda*:

- (i) un merda di video da mettere su Instagram
a.M.SG shit.F.SG of video.M.SG COMP put on Instagram
‘a shitty video to put on Instagram’

The acceptability of structures with a transparent *merda* seems to correlate with a speaker’s regiolect, and specifically with Northern Italian varieties. This will be investigated in future research.

- ‘That fucking paper’
- b. ?*quel merda di articolo
 that.M.SG shit.F.SG of paper.M.SG
 ‘That shitty paper’

On the other hand, when the ExprN follows the RefN, a gender mismatch between ExprN and RefN is always unproblematic, both for the *cazzo* and the *merda* type.

- (9) a. quel professore di merda
 that.M.SG professor.M.SG of shit.F.SG
 ‘that shitty professor’
- b. quella professoressa del cazzo
 that.F.SG professor.F.SG of.the dick.M.SG
 ‘that dick of a professor’

We conclude that the ExprNs of the *cazzo* class are generally transparent for agreement.

2.3.2 NUMBER

The same picture as with GENDER is found with NUMBER. The *cazzo* class is transparent (10-a), unlike the *merda* class (10-b). In both cases, the D head and the RefN are PL, whereas the ExprN is SG.

- (10) a. quei cazzo di articoli
 those.M.PL dickM.SG of paper.M.PL
 ‘those shits of letters’
- b. *quelle merda di lettere
 those.F.PL shit.F.SG of letter.F.PL
 ‘those shits of letters’

We return to a way of resolving the number mismatch in (10-b) in Section 2.4 below.

The NUMBER of the *cazzo* class ExprNs is invisible for the agreement of the determiner:

- (11) *?quel cazzo di articoli
 those.M.SG dickM.SG of paper.M.PL
 ‘those shits of letters’

Summarizing the findings of this section on transparency, we have seen that the *cazzo* type nouns are invisible for agreement processes, whereas the *merda* nouns are not. This difference is not expected under the predication inversion

analysis of this construction (nor under any other analysis that we are aware of).

2.4 Rigidity

In the previous section, we examined cases where the ExprN could fail to agree with *phi*-features of the RefN and the determiner. An example of a number mismatch with *cazzo* was given in (10-a) above. Now one could imagine the number mismatch of (10-a) being solved by changing the number of the ExprN from SG to PL, but this leads to ungrammaticality, as (12) shows.

- (12) *quei caazzi di articoli
those.M.PL dickM.PL of paper.M.PL

We call this property the rigidity of the ExprN, pointing to the fact that it cannot inflect for number. The rigidity of *cazzo*-type ExprNs also holds when the ExprN follows the RefN, as shown in (13).

- (13) a. quegli articoli del cazzo
those.M.PL paper.M.PL of.the.SG dick.M.SG
b. *quegli articoli dei caazzi
those.M.PL paper.M.PL of.the.PL dick.M.PL
'those fucking letters'

ExprNs of the *merda*-type behave like the *cazzo*-type when they follow the RefN, i.e. they are rigid and cannot inflect for number (14-a). However, when they precede the RefN, *merda*-type ExprNs are flexible, i.e. they can inflect for number to match the NUMBER value of the following RefN (14-b).

- (14) a. quelle lettere di merda / *merde
those.F.PL letter.F.PL of shit.F.SG / shit.F.PL
'those shitty letters'
b. quelle merde di lettere
those.F.PL shit.F.SG of letter.F.PL
'those shitty letters'

3 Analysis

In our view, the different positional, transparency, rigidity, and emotive content properties of the two classes of ExprNs we examined in the previous section reflect the fact that the relevant lexical items have a different internal structure. This difference in internal structure in turn reflects a difference in the

grammaticalization stage they have reached. In other words, along a lexical-to-functional continuum, *merda*-type lexical items are closer to the lexical end, while *cazzo*-type items are closer to the functional end. As such, our approach draws upon some recent analyses of the phenomenon of semilexicality and syntactic recycling, like the ones proposed by Corver (1998), Klockmann (2017), Cavigrani-Pots (2020), Saab (2022b).

Concretely, we shall defend the following claims:

- (15) a. ExprN *cazzo* lacks any referential content
- b. ExprN *cazzo* is not morphologically complex, and lacks GENDER and NUMBER features
- c. RefN *cazzo* is morphologically complex, and has GENDER and NUMBER features

We shall show that (15-a) leads to an explanation for the inability of *cazzo* to occur in predicative position (Section 3.1), whereas (15-b) explains its invisibility to syntactic agreement processes (Section 3.2). We discuss the reasons for assuming (15-c) in what follows.

By implication, since the *merda*-type nouns empirically differ in all these respects from the *cazzo* type, we shall take them to be morphologically complex, and the suffix following the nominal root to be an exponent expressing gender and number features (as it does in any other feminine noun to which it attaches).

3.1 Predicative position

As observed by Saab (2022a), ExprNs may behave differently in the predicative position when compared with the prenominal position. This is shown by the minimal contrast in (16) (Spanish; from Saab 2022b: 360):

- (16) a. Andrés es *puto*.
Andrés is homosexual
'Andrés is a faggot.'
- b. el *puto* de Andrés ...
the homosexual of Andrés
'That damn Andrés ...'

Both of these examples involve (pejorative) expressive content, which is associated with the ExprN *puto*. However, only in (16-a), where *puto* is in predicative position, does it also have truth-conditional (referential) meaning, i.e. it is part of the assertion of the sentence that Andres is a homosexual. In contrast, in (16-b), there is no implication that Andrés is homosexual, and *puto* is reduced to being solely expressive. Saab's conclusion is that the prenominal position

can be exclusively expressive. In contrast, the predicative position cannot be a purely expressive position, i.e. it necessarily carries with it referential meaning. He formulates this as follows.³

- (17) *Saab's Criterion* (Saab 2022b: 367)

All predicates that appear in copular position must have predicative force at the truth-conditional level.

Assuming that the ExprN *cazzo* has lost all referential meaning, we can explain why it cannot appear in predicative position, since that position requires a noun with referential meaning. In other words, the impossibility for ExprN *cazzo* to occur in the predicative position follows from the assumptions in (18):

- (18) a. The predicative position requires an element with truth-conditional content (=Saab's Criterion).
 b. ExprN *cazzo* lacks truth-conditional content, i.e. it is a pure expressive.

Confirming this line of thought is the existence of cases where the noun *cazzo* can appear as a predicate, i.e. in copular position, as in the examples in (19).

- (19) a. Questo è un cazz-o.
 this is a penis.PEJ-m.sg
 ‘This is a penis.’
 b. Questi sono cazz-i miei.
 this.PL are business-PL mine.PL
 ‘These are my business.’

Here the noun *cazzo* does have referential meaning: it can be a low register word that means ‘penis’ (19-a), or one that refers to a generic thing or things (19-b), which we also find in (20).

- (20) Dammi quel cazzo lì!
 give.me that thing there
 ‘Give me that thing there.’

It is therefore not surprising that this *cazzo* with referential content occurs in predicative position, i.e. these examples confirm the correctness of Saab's Criterion. In fact, *cazzo* is like Spanish *puto*, which is a pure expressive in adnominal position, but has referential content in predicative position. The difference

³Saab calls this *Pott's Criterion*, it being based on (Potts 2007: 194), who assumes that all predicates that appear in copular position must necessarily fail to be expressive. However, since Saab's formulation deviates crucially from the one in Potts (2007), we refer to it as Saab's Criterion.

is that the referential meaning of *puto* ('homosexual') is compatible with an animate RefN, whereas the RefN *cazzo* ('thing') refers to inanimate objects only. As a result, we find *puto* in predicative position with animate subjects (as in (16-a)), but not *cazzo* (see (2-a) above).

Above, we also discussed two other cases where *cazzo* (or a noun derived from it) occurred in predicative position, namely the ones in (2-b) above, with *testa di cazzo* 'head of dick' and with *cazz-on-e* 'asshole'. These can be understood as following from the fact that *testa* 'head' and the suffix *-on*, which derives person-denoting nouns, provide the necessary referential content.

The examples in (19) therefore involve not the ExprN *cazzo*, but a homophonous RefN *cazzo*. We conclude from this that in Italian there are (at least) two homophonous lexical items *cazzo*, a referential one seen in (19) and (20), and a purely expressive one, as in (1-a).⁴

The absence of any referential content in ExprN *cazzo* is further evidenced by the fact that it can be used as an NPI (21-a), as an interjection (21-b), and as an expletive with *wh*-items, as in (21-c) (examples from Doliana 2015: 3).

- (21) a. Non ho fatto un cazzo oggi.
not have.1sg done a dick today
'I have done fuck all/nothing today.'
- b. Ma mi lasci in pace, cazzo!?
but me leave.2sg in peace, dick
'Fuck! Will you just leave me alone?!'
- c. Ma dove cazzo vai!?
but where dick go.2sg
'Where the fuck are you going?!'

In its use as an NPI, *cazzo* has acquired quantificational meaning, in the manner described by Postma (1995) under the label 'zero semantics'.

The analysis that would take ExprNs to be predicates faces the problem of accounting for the fact that ExprNs have different properties when they appear adnominally from when they appear following a copula. According to our analysis, pure expressives like ExprN *cazzo* cannot be predicates, since predicates are subject to *Saab's criterion*, i.e. they are required to have truth-conditional content, which they lack. If they do appear in predicative position, they cannot be pure expressives, but must be referential nouns. This provides an argument against the predicate inversion analysis of *N-of-N* constructions, at least when purely ExprNs are involved. Note, however, that this argument

⁴The alternative to homophony would be to assume that this a case of syncretism. We shall not here attempt to address the question what is the better analysis of the relation between the ExprN and the RefN *cazzo*, since we do not see which alternative is preferable, and on which grounds.

against a predicational analysis does not hold for the *merda* class, since it has quite different properties, as we have shown. In particular, *merda* shows no difference in properties when used adnominally or in copular position.

3.2 Transparency

We now turn to our second assumption, which holds that ExprN *cazzo* is not morphologically complex (15-b). The idea we would like to explore is that the grammaticalisation process by which a lexical noun becomes a functional item involves, alongside the loss of conceptual meaning, the loss of morphological complexity, whereby a morphologically complex noun is reanalysed as consisting of a single morpheme. This gives us a handle on dealing with both the rigidity and the transparency of ExprN *cazzo*.

The transparency of the ExprNs of the *cazzo* class could in principle be accounted for in two different ways. The first assumes that the gender and number features of the ExprN are present but invisible for the syntactic computation, while the second approach assumes that they are absent. Most existing analyses assume some form of invisibility (e.g. Doliana 2015, Giorgi and Poletto 2021a,b). We shall here defend the alternative view, according to which the ExprN *cazzo* lacks person and gender features.

An apparent problem with assuming that the features are absent is that the nouns of the *cazzo* class are, at least on the face of it, morphologically complex, consisting of a root and a suffix marking gender and number, as shown in the overview in (22).

(22)	ExprN	SUFF	GENDER	NUMBER
	cazzo	-o	M	SG
	minchia	-a	F	SG
	accidenti	-i	M	PL

This fact at first blush stands in the way of assuming that gender and number features are lacking, since the features are clearly associated with the suffixes, and not with the root, and we would not want to say that there are two homophonous suffixes, one with and another one without gender and number features. While one could deal with this problem for *cazzo*, under the assumption that the *-o* ending is the default that is inserted when the relevant features are absent, such an approach is hard to extend to the *-a* and *-i* endings, since these cannot be also the defaults. If, on the other hand, we assume that all three ExprNs of (22) are morphologically simplex and lack gender and number features altogether, this problem does not arise: a c-commanding probe such as D will find nothing to agree with in the ExprN, and hence must agree with the RefN.

A strong argument for assuming (15-b) is the rigidity effect that we observed earlier, i.e. the fact that the *cazzo* ExprNs do not inflect for number. If they were run-of-the-mill complexes of a root and an ending, it is hard to see why this ending could not change (and as we have seen, in the case of the *merda* class the ExprN does show this flexibility).

A potential obstacle in the way of analysing *cazzo* as morphologically simplex is the fact (observed in Doliana 2015: 3) that various types of derivational morphemes may attach to the root *cazz-*, as already shown in (2-b) above for the suffix *-on*, and for *-at* in (23).

- (23) Questa è proprio un-a bell-a cazz-at-a!
 this.F is.3SG really a-F.SG INTS-F.SG dick-EVENT-F.SG
 ‘This is really a fuck-up!’

We want to argue that these cases are derived from the RefN *cazz-o*, rather than the ExprN *cazzo* . Recall that we took the RefN *cazz-o* to be a morphologically complex noun, homophonous with the ExprN (15-c). In contrast to ExprN *cazzo* , the referential noun can pluralise, be modified, and occur in predicative position (24-a), and so can the *cazz*-derived nouns (24-b).

- (24) a. Questi sono due be-i cazz-i.
 this.M.PL are two beautiful-M.PL penis.PEJ-M.PL
 ‘These are two beautiful penises.’
 b. Quei professori sono proprio de-i be-i cazz-on-i!
 that.PL professor.PL are really a-PL INTS-PL dick-PSN-PL
 ‘Those professors are really boneheads!’

Moreover, when the *cazz*-derived nouns occur prenominally, they also lose the transparency property of the purely ExprN *cazzo* , i.e. they must agree with the RefN:

- (25) de-i be-i cazz-on-i/*e di professor-i
 of-M.PL INTS-M.PL dick-PSN-M.PL/M.SG of professor-M.PL
 ‘some really bonehead professors’

3.3 Stacking

The empirical finding of Section 2.2 above was that ExprN *merda* is always closer to the RefN than ExprN *cazzo* , regardless of whether it precedes or follows the RefN. This fact confirms our earlier analysis, in so far as it also makes a distinction between the two classes of ExprNs. In this section we provide a tentative account of this finding by connecting it to the morphologically impoverished nature of the *cazzo* class. The idea is that *merda* is a normal noun

as far as gender and number marking is concerned, and as such, it is topped by the normal nominal extended projection. The latter has a position where Evaluative or speaker-oriented material may be hosted, and this is where *cazzo* can be merged. Conversely, since *cazzo* lacks gender and number projections, it does not project the nominal extended projection either, so that *merda* cannot be merged higher than *cazzo*. The evaluative position hosting *cazzo* could either be an expletive position (as proposed in Saab 2022b), or (part of) a DP-internal dedicated interactional layer for speaker and hearer related content, as proposed in Ritter and Wiltschko (2019). This layer would also host deictic demonstratives, honorific pronouns, as well as potentially other elements. Admittedly, this analysis leaves many details to be worked out. However, we take one of the main findings of this paper to be the fact that there is no uniform analysis for the ExprNs of the *cazzo* class and those of the *merda* class, as the word order and other facts we have discussed show.

4 Conclusion

In this paper we argued that Italian provides evidence for two classes of expressive constructions, the *cazzo* class and the *merda* class. These were argued to represent various stages in the evolution from a lexical noun to a functional vocabulary item, with ExprN *cazzo* have gone further in that process. This is reflected in their internal structure, in that ExprN *cazzo* has lost its internal morphological complexity, as well as gender and number features. These properties of the *cazzo* class ExprNs were shown to account for its inability to occur in predicative position, its invisibility to agreement, and its inability to pluralise. We also offered a tentative account of the stacking properties of the two classes of ExprNs.

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Katharina ist eben die beste: On conclusive discourse particles in Wolof and German

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1 Introduction

This short squib in honour of Katharina brings together two topics at the heart of her research activities: the formal study of German, on the one hand, and the study of West African languages, on the other. I will take this special opportunity to discuss two of my favorite topics, namely German discourse particles and the semantics of West African languages, and to show how they can be fruitfully combined. Drawing on Jordanoska (2020), I will propose a unified QUD-based analysis for the Wolof conclusive particle *daal* and its German counterpart *eben*. (1) shows a representative example of *eben* from Thurmair (1989: 122) in its proto-typical sentence-connecting and inquiry-terminating function, where it indicates that nothing more need be said on the topic.

- (1) a. Evi: Today is a bit complicated! I still have so much to do.
b. Pit: Gut, komm ich **eben** morgen. So dringend ist es ja
P: Alright, come I PRT tomorrow. So urgent is it PRT
nicht.
not
'Alright, I will come tomorrow, then. It's not that urgent after all.'

(2-a) from Jordanoska (2020: 67) illustrates the Wolof conclusive discourse particle *daal*. The example comes from the discussion of a case in which a child has been raised by foster parents. Later the child's putative biological mother asks for him to come with her, giving rise to the question 'What should the child and the foster parents do?'. This question is then answered conclusively with (2-a). Interestingly, the closest translation to German features the particle *eben* in (2-b):

- (2) a. Dañu war-a dem... def test ADN xool baxam... k-an
 VFOC.3PL must-VL go do test DNA see whether NC.SG-Q
 moo moom xale b-i **daal.**
 SFOC.3SG possess child NC.SG-DEF.PROX PRT
 ‘They have to go do a DNA test to see who the child belongs to.’
 b. Dann müssen sie **eben** einen DNA-Test machen lassen, um zu se-
 hen, wessen Kind es ist. (German)

Both German *eben* and Wolof *daal* are also found in advice imperatives, cf. (3), (4):

- (3) a. I won’t manage until tomorrow.
 b. Arbeit **eben** schneller.
 work PRT faster
 ‘Work faster then!’ (German, Müller 2018)
- (4) Elicitation context: Your friend tells you a man has been following her around lately. You think he might be dangerous. You say:
 a. Moytu-l daal/ #de!
 be.careful-IMP.SG PRT PRT
 ‘Be careful!’ (advice) (Wolof, Jordanoska 2020: 71)

On closer scrutiny, *eben* and Wolof *daal* have a fully parallel distribution. Both are licit (i.) in consequential or concluding statements, cf. (1), (2); (ii.) in advice imperatives, cf. (3), (4), though not in warning imperatives; and (iii.) in so-called repetitive and incomplete information contexts (to be shown). Given these striking parallels in distribution, I will draw on Jordanoska (2020) on *daal* and propose a unified QUD-based analysis for both particles that accounts for their shared interpretive properties and parallel distribution.

The article is structured as follows: Section 2 gives an overview of the received wisdom of the meaning of German *eben*, drawing on the extensive literature. Section 3 briefly discusses a formal discourse-semantic analysis of *eben* in the *Table Model* of Farkas and Bruce (2010), and some problems for this particular implementation. Section 4 introduces the relevant data on Wolof *daal* from Jordanoska (2020), and it shows how they can be accounted for in a QUD-based analysis. Given the parallels in distribution, Section 4.3 then extends the QUD-based analysis to *eben*. Section 5 concludes with a short comparison to the German particle *ja* and some remarks on different sub-types of discourse particles in natural language.

2 The meaning contribution of *eben*

Same as the meaning of other German discourse particles, the semantic contributions of *eben* and its close counterpart *halt* have been amply discussed in the for the most part descriptive literature; see, e.g., Dahl (1988), Thurmair (1989), Karagjosova (2004), and Müller (2018) for a recent overview.¹

2.1 The meaning of *eben* (and *halt*)

Following Müller (2018: 211ff.), there seems to be a general consensus that *eben* has two major meaning components. First, *eben* is anaphoric, as the clause containing the particle must stand in some (often causal or conditional-consequential) relation to some salient proposition in the discourse. *Eben* (and *halt*) can therefore be considered responsive or reactive particles that require a contextual antecedent and cannot occur in out-of-the-blue or topic-changing utterances, cf. Müller (2018: 211). Second, *eben* introduces an interpretive element of categoricity or inquiry-termination. This interpretive effect has been variably addressed as *unabänderlich*, *kategorisch*, *Thema beendend*, *Absolutheit*, *Kategorizität*, *evident*, *generell gültig*, *axiomatisch*, where the evident status may extend to the relation between particle utterance and its contextual antecedent; see Müller (2018) for references. Summing up the discussion in the literature, we observe that *eben* is inquiry-terminating (Velleman et al. 2012), or *issue-resolving*. Notice that the discourse-semantic literature offers two formal models for dealing with issue-resolving discourse moves. In the Table Model of Farkas and Bruce (2010), an issue is resolved if it is removed from the negotiation table, typically through an enrichment of the mutual common ground (Stalnaker 1978). In the QUD-model of Roberts (2012), issues are identified with *questions under discussion (QUDs)*. They are resolved when the QUD in question has been fully answered. In what follows, we will consider both models in our quest for finding out which model may be more suitable for capturing the observable facts.

In connection with its issue-resolving nature, it has been observed that *eben* is stronger than its close counterpart *halt*. Example (5) from Thurmair (1989: 124) illustrates. In this context, *eben* is intuitively perceived as too strong, thereby leading to a contradiction. In contrast, the presence of *halt* just indicates a potential problem that leaves room for alternatives (i.e., the friends could bring some beer).

¹I will focus on *eben* and make only occasional reference to *halt*, which I take to be related but not identical in meaning; cf., e.g., Müller (2018) for similarities and differences between the two particles.

- (5) Context: You can bring your friends along alright.
- Wir haben **halt** kein Bier mehr.
we have PRT no beer more
'We have no more beer, though.'
 - #Wir haben **eben** kein Bier mehr.
we have PRT no beer more
'We have no more beer, though.'

Thurmair (1989) also observes that *eben* cannot easily be substituted for *halt*. She concludes that *eben* has a stronger meaning than *halt*: *Eben* marks the propositional content of its utterance as evident, whereas *halt* marks the propositional content of its utterance as merely plausible, where the notions of evidentiality and plausibility are characterized by the presence or absence of alternatives:

- (6) a. *eben p*: There are no alternatives to $p \rightarrow p$ is evident
b. *halt p*: p is plausible against other licit alternatives from $\text{ALT}(p)$

The notion of alternatives immediately brings to mind the notion of questions or QUDs, a point to which we will return below.

2.2 Representative occurrences of *eben*

We conclude this section with a list of representative typical occurrences of *eben*. First, as already shown in (1), *eben* is frequently found in sequences of sentences that stand in the semantic relation of *cause*, *consequence*, or *conclusion*:

- (7) a. Our neighbour was very noisy again today.
b. Er ist **eben** ein Choleriker.
he is PRT a choleric
'He is a choleric after all.'

(Müller 2018: 213, nach Dahl 1988: 98)

Secondly, *eben* often occurs in clauses expressing *incomplete information*. Notice that there are two ways for the information conveyed by (8-b) to be incomplete: (i.) speaker ignorance ('I have no idea. That's the way it is!'), or (ii.) purposely withheld information ('I won't tell you. That's the way it is.').

- (8) a. Wieso muss man denn hier fünf Fragebögen ausfüllen?
why must one PRT here five questionnaires fill.in
'Why would we need to fill in five questionnaires?'
b. Das ist **eben** so.
that is PRT so
'That's just the way it is.'

(Müller 2018: 212, Schlieben-Lange 1979: 312)

Eben-clauses can also function to sum up in a repetitive or conclusive manner:

- (9) a. What do you see in the picture?
 b. Ich sehe einen Baum. Ich sehe auch Häuser. Ja, da sind **eben**
 I see a tree I see also houses yes there are PRT
 ein Baum und Häuser.
 a tree and houses
 ‘I see a tree. I also see houses. Yes, there is just a tree and houses
 (There is no more to be said.)’

The final licensing environment for *eben* are *advice imperatives*, as already illustrated in (3) above. In contrast, *eben* is infelicitous in out-of-the blue *warning imperatives*:

- (10) Achtung, bleib (#**eben**) stehen!
 attention stay PRT stand
 ‘Attention, don’t move.’

Finally observe that *eben* is focus-sensitive. As with other discourse particles (Zimmermann 2011), accent placement affects the overall interpretation of *eben*-clauses:

- (11) a. Dann nimm **eben** die BRÖTCHEN.
 then take PRT the breadrolls
 ‘Take the BREADrolls then.’
 (QUD: What should A take?)
 b. Dann NIMM **eben** die Brötchen.
 then take PRT the breadrolls
 ‘Do take the breadrolls, then.’
 (QUD: To take or not to take?)

An adequate analysis of *eben* should capture the sensitivity to focus and the QUD. We next turn to the formal semantic analysis of the meaning of *eben*.

3 Modelling the meaning of *eben* in the Table Model

Müller (2018) puts forward a concrete proposal for modelling the meaning of *eben* in the Table Model of Farkas and Bruce (2010). In this section, we quickly introduce the model with its four basic components in 3.1, before we look at the concrete implementation in Müller (2018) in 3.2. This will be followed by a critical discussion of some problems for the analysis in Müller (2018).

3.1 The Table Model: Farkas and Bruce (2010)

Farkas and Bruce (2010) put forward a general framework for dynamically modelling the discourse semantic impact of assertion and question speech acts, and their corresponding responsive discourse moves of confirmation, rejection and answers (to questions). In a nutshell, the model consists of the following components: (i.) the *Table* registers the issue currently under discussion: issues can be introduced by assertions or questions alike; (ii.) the *discourse commitments (DCs)* of the individual interlocutors; (iii.) the *projected set*, which indicates the direction in which the speaker of an utterance intends or expects the discourse to develop; (iv.) the Stalnakerian *common ground (CG)*, which registers the propositions mutually agreed upon. A propositional piece of information will automatically enter the common ground once all the interlocutors have publicly committed to it as part of their individual discourse commitments. Table 1 illustrates for two interlocutors, *A* and *B*.

A	Table	B
DC_A	S	DC_B
Common Ground cg		Projected Set ps

Table 1: The Table Model of Farkas and Bruce 2010

Tables 2 and 3 model the development of the mini-discourse in (12) with an initiating assertion and a subsequent (responsive) confirmation. Here, *p* stands for the proposition that Levi is sick.

- (12) a. B: Levi is sick. (= *p*)
 b. A: Okay!

B's public assertive commitment to *p* in (12-a) is first registered in the set of *B*'s public discourse commitments. By committing to *p*, *B* also places *p* as a new issue on the negotiation table. Moreover, the assertive nature of *B*'s speech act changes the projected set such that the original CG cg_0 is updated with *p*. Since *A* has not committed to *p* yet, the CG remains in its original state. This only changes with *A*'s confirmation in (12-b), by which *A* publicly commits to *p* as well. As both interlocutors agree, the issue is resolved, and the CG is updated with *p*. Both table and the projected set are empty again until the next initiating discourse move raises the next issue in the form of an assertion or question. Let us now take a look at Müller's (2018) specific analysis of the discourse-semantic effects of *eben* in this model.

A	Table	B
DC_A	p	p
cg_0		$ps_1 = \{cg_0 \cup \{p\}\}$

Table 2: Modelling the assertion of $p = Levi$ is sick

A	Table	B
p		p
$cg_1 = cg_0 \cup \{p\}$		

Table 3: Modelling confirmation by *Okay!*

3.2 Modelling *eben* in the Table Model: Müller (2018)

Müller's (2018) analysis of *eben* aims at accounting for its discourse-anaphoric and its categorical, issue-resolving nature within a slightly revised version of the original Table Model of Farkas and Bruce (2010). One change concerns the fact that Müller (2018) takes the assertion that p to raise the slightly more complex issue $p \vee \neg p$. She illustrates her analysis with the example in (13), where the use of *eben* highlights a causal or consequential relation between two utterances by two speakers A and B.

- (13) a. B: Levi is not looking well. ($= q$)
 b. A: Er war eben lange krank. ($= p$)
 he was PRT long ill
 'He has been ill for a long time after all.'

Müller (2018) postulates three general conditions for the felicitous use of *eben*: (i.) Speaker A's *eben*-utterance with its propositional prejacent p must anaphorically refer back to a contextually salient proposition q , which she takes to be part of the individual public discourse commitments of addressee B (more on this below); (ii.) moreover, the *eben*-prejacent p must also be part of the addressee's public discourse commitments; (iii.) finally, there must be a defeasible entailment $p > q$ in the CG. In the case of (13), this is the entailment that if somebody has been sick for a long time ($= p$) they will not look too great ($= q$). Presumably, this particular entailment is in the CG as part of general world knowledge. Together, the three conditions are intended to ensure the anaphoricity and issue-resolving categorical nature of *eben*, as will be shown next.² The pre-state of the discourse that licenses A's utterance of (13-b) is

²Müller (2018: 228f.) assigns slightly different use-conditions to *halt*. According to her, *halt*

shown in Table 4. By uttering (13-b) with *eben*, A publicly commits to p , which by way of modus ponens and the CG-entailment $p > q$ results in a commitment to q as well. As a result, the space of A's discourse commitments is updated with both p and q . This also resolves the issue of whether q , and the CG is updated with both p and q , as shown in Table 5. In Müller's (2018) account, then, the issue-resolving nature of *eben* is formally reflected by the fact that there are no more issues to be resolved on the Table. This is achieved by the combination of A's public commitment to p and the default CG-entailment $p > q$. As will be shown next, though, this apparent success comes at a cost.

A	Table	B
	$q \vee \neg q$	q, p
$cg : p > q \in cg$		

Table 4: Discourse state before *eben*-utterance; adapted from Müller (2018: 225)

A	Table	B
q, p		q, p
$cg : \{p > q, p, q\} \subset cg$		

Table 5: Discourse state after *eben*-utterance (13-b), modified from Müller (2018: 226)

3.3 Problems

Müller's (2018) specific analysis of the meaning of *eben* in the Table Model faces at least three problems. First, the analysis requires the *eben*-proposition p to be part of the addressee's set of discourse commitments (*DCs*) before the sentence with *eben* is uttered. This is problematic since DCs are NOT belief states as they do NOT contain privately entertained beliefs. According to Farkas and Bruce (2010: 85), “[t]he discourse commitment set of a participant A at a time t in a conversation c contains those propositions A has publicly committed to in the course of c up to t and which have not (yet) become mutual

merely presupposes that the addressee B of the asserted *halt*-proposition p be publicly committed to some proposition q that is defeasibly entailed by p , and speaker A publicly commits to this defeasible entailment $p > q$. Its weaker interpretation follows from the fact that the entailment is not part of the mutual CG, thereby leaving room for alternatives.

commitments.” In other words, in the orginal Table Model, public commitment proceeds through explicit assertion (or silent approval of *ps*-content with a responsive discourse move), but such public discourse commitments to *p* do not normally precede an utterance of *eben p*. In any event, the analysis would predict the following discourse sequence, slightly modified from (13) above, to be fully acceptable, contrary to fact. If anything, A’s final *eben*-utterance feels very much redundant.

- (14) a. B: Levi war lange krank. Er sieht schlecht aus. (= *p* \wedge *q*)
 Levi was long sick he looks bad PRT
 ‘Levi was sick. He doesn’t look well.’
- b. #A: Er war eben lange krank. (= *p*)
 he was PRT long ill
 ‘He has been ill for a long time after all.’

The second problem concerns the fact that the defeasible causal or consequential entailment $p > q$ is built directly into the use-conditional meaning of *eben*. It is far from clear, though, that all instances of *eben* rely on such a defeasible entailment. Consider again the summarizing use of *eben* in (9) above. If anything, the entailment would be the trivial strictly logical entailment from $p_1 \wedge p_2$ to p_1 and p_2 , respectively. Finally, the focus-sensitivity of *eben* observed in (11) would require an enrichment of the original Table Model such that it can deal with more fine-grained issues. While this seems certainly feasible, it leaves open the question of how this relates to the $p > q$ -entailments that are taken to be a basic meaning component of *eben* in Müller (2018).

To sum up, the analysis in Müller (2018) faces some technical and empirical problems. While a table-based analysis of the meaning of *eben* does not appear impossible, it is not entirely clear what exactly such a model would look like. With this in mind we now turn to the Wolof particle *daal* and its analysis in Jordanoska (2020).

4 The view from Wolof *daal*: A QUD-approach (Jordanoska 2020)

Wolof is a Senegambian language with basic word order SVO(X) from the Atlantic sub-family of the Niger-Congo phylum, spoken mostly in Senegal and Gambia. It is a noun class language with no case marking but SUBJ agreement and focus inflection on the verb. Every Wolof clause contains exactly one *verbal conjugation*, which appears pre- or post-verbally and which comes with changing form depending on person and number, aspect, mood, and the syntactic status of the focused element (Robert 1989). In addition, focus in

Wolof is sometimes marked by movement to the left periphery (Jordanoska 2020: 53). (15-a) illustrates for a canonical clause, and (15-b) for an object focus cleft.

- (15) a. Ayda ak Jeynaba lekk-na-ñu [ceeb b-i] [ci kér
 A. and J. eat-FIN-PL rice NC-DEF.PROX P house
 g-i]
 NC-DEF.PROX
 ‘Ayda and Jeynaba ate the rice at the house.’ (Tamba et al.
 2012: 893)
- b. [Gato b-i] l-a [xale yi lekk]
 cake NC-DEF.PROX XPL-COP child NC-DEF.PROX eat
 ‘It’s the cake that the children ate.’ (Tamba et al. 2012: 893)

4.1 The Wolof particle *daal*: Its use and distribution (Jordanoska 2020: §3)

The conclusive discourse particle *daal* has the same four core occurrences as its German counterpart *eben*: We see its conclusive sentence-relating use in (2) above and in (16), and its occurrence in advice imperatives in (4). Same as *eben*, *daal* furthermore occurs in ignorance contexts in which it signals lack of information, cf. (17),³ and it also occurs as a repetitive summarizing particle in (18) (Jordanoska 2020: 66, 68, 64):

- (16) Context: Speaker is explaining what the fraud-related issues are with the system of collecting signatures to in order to become a candidate in the upcoming elections in Senegal. He names two examples, namely i) people giving their signature without thinking about it and ii) people paying for signatures, and then says: ‘All of those (bad practices) you can find here’ and continues:
- a. Moo tax ma xam ni daal élection
 SFOC.3SG cause 1SG.S know COMP PRT election.FR
 y-i di ñew bu si Yàlla def-ul sutura
 NC.PL-DEF.PROX IPFV come if LOC God make-NEG.3SG respect
daal moom, mën na am safaan
 PRT moom can CLFOC.3SG have woe
 ‘If God does not help us, there may (G: **eben**) be problems.’
 (Jordanoska 2020: 66)

³Jordanoska (2020) labels this instance of *daal* as *in any case-daal*

- (17) a. ‘Do you think someone else could have a different view?’
 b. Mén na nekk de. waaye de, boo xol-ee daal
 can CLFOC.3SG exist de but de if.2SG look-PFV PRT
 lu-m la-y njëkk-a, jox daal a-b kanaara
 what-3SG.s 2SG.O-IPFV be.first-VL give PRT INDF-NC.SG duck
 la. Walla a-b picc... picc walla kanaara **daal**.
 CFOC.3SG or INDF-NC.SG bird bird or duck PRT
 Ci mala yooyu la daal.
 LOC animal those CFOC PRT
 ‘Could be. But if you look, upon a first impression at least, it is a
 duck. Or a bird... a bird or a duck. In any case, it is one of those
 animals.’
- (18) Context: I see a tree in it. I also see houses in it....
 a. Waaw, gis naa ci garab ak a-y kér **daal**.
 yes see CLFOC.3SG LOC tree and INDF-NC.PL house PRT
 ‘Yes, I see (G: **eben**) a tree and houses in it.’

(Jordanoska 2020: 64)

Summing up, the Wolof conclusive particle *daal* occurs in the same environments as German *eben*. Same as *eben*, it does not seem to require the interlocutor’s previous discourse commitment to its prejacent *p*. Like *eben*, *daal* has an apodictic, conclusive character, and its central function seems to consist in resolving issues. Finally, *daal* cannot occur out-of-the blue, as evidenced by its infelicity in warning imperatives:

- (19) Context: Your friend wants to cross the street in heavy traffic.
 a. Moytu-l #daal/ de!
 be.careful-IMP.SG PRT PRT
 ‘Be careful!’

(Jordanoska 2020: 71)

We therefore conclude that *daal* resembles *eben* in being discourse-anaphoric and issue-resolving, and that the two particles should receive a unified analysis.

4.2 Jordanoska (2020): A QUD-analysis of *daal*

In order to capture the anaphoric and issue-resolving nature of *daal*, Jordanoska (2020: 74ff.) gives the informal characterization of its use-conditional meaning in context *c* in (20-a). (20-b) provides a more formal variant.

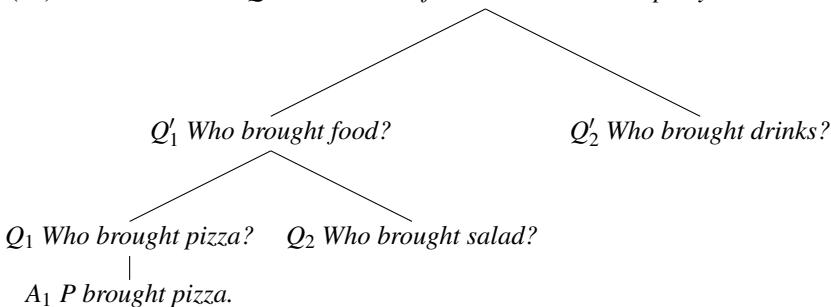
- (20) a. $\llbracket \text{daal} \rrbracket^c \approx$ The speaker c_S considers p their final answer to a super-question that (i) dominates the *daal*-sentence, and (ii) is the root of a strategy.

- b. $\llbracket \text{daal } S \rrbracket^c \approx$ The speaker c_S considers $\llbracket S \rrbracket$ their final answer to a super-question that (i) dominates $\text{daal } S$, and (ii) is the root of a strategy.

The notion of a question-based *discourse strategy* here refers to a coherent sub-part of a discourse, or a D-tree, the parts of which are structurally related by dominance and linear precedence, and which aims at the settling of a particular issue of interest (Roberts 2012, Büring 2003, Zimmermann 2014, Riester et al. 2018, i.a.). D-trees consist of super-questions and their daughter *sub-questions* that are all attached at the same level. Furthermore, Riester et al. (2018) propose to attach follow-up questions to an answer as sisters to that answer. On the basis of such D-tree structures, Büring (2003: 518) defines a *strategy* as "any subtree of a D-tree which is rooted in an interrogative move". For instance, the following D-tree contains a strategy consisting of Q'_1 , Q_1 , Q_2 , and A_1 , which is rooted in Q'_1 , to the exclusion of Q'_2 . In (21), Q'_1 and Q'' function as super-questions to A_1 , whereas Q_1 is its immediate QUD.

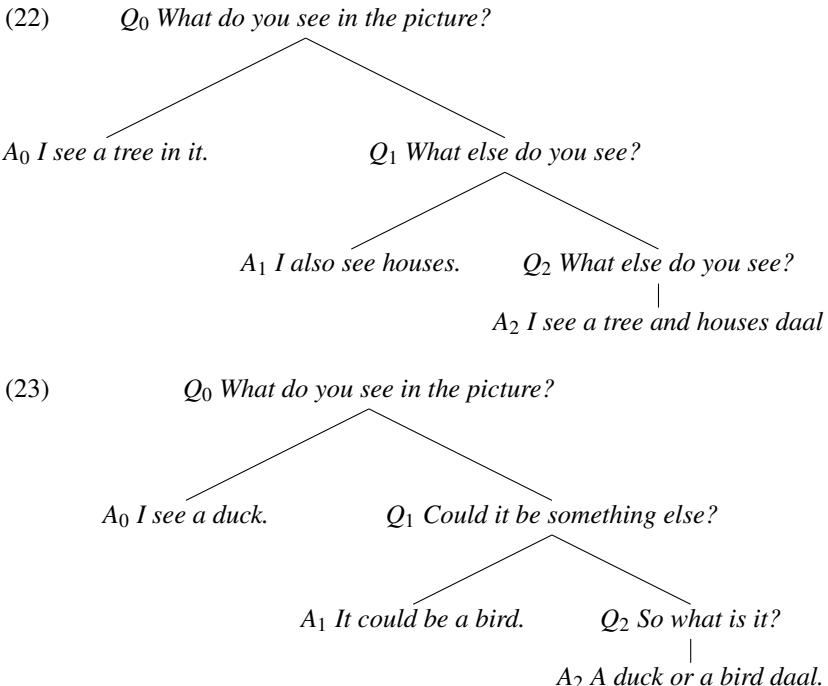
(21)

Q'': What about food and drink at the party?



Notice that the meaning of *daal* in (20) captures its two essential discourse-semantic properties: Its discourse-anaphoric nature follows from the fact that the *daal*-utterance forms part of a larger question strategy including some root super-question. Its inquiry-terminating or issue-resolving nature follows from the fact that *daal* marks the final answer to this super-question.

With these background assumptions in place, Jordanoska (2020: 74ff.) assigns the D-tree analysis in (22) to the repetitive summarizing context in (18). Notice that the *daal*-utterance is the final answer to the super-question Q_0 , which forms the root of a strategy, thereby licensing the use-conditional meaning of *daal* in (20). Similarly, the context in (17), in which *daal* expresses lack of information, can be analysed as in (23).



The election example in (16) receives a similar analysis, where the super-question *Q₀ What do you think about the upcoming elections?* functions as the root of a complex question strategy with sub-question *Q₁ What about the signature system*, its answer *A₁ The system poses problems* and sub-question *Q₂ What are the problems?* and its sub-ordinated subsub-questions *Q_{2.1} Do people think about what they sign?*, and *Q_{2.2} Do people pay for a signature?*, and their corresponding sub-answers. The *daal*-utterance provides the final answer to resolve this strategy, and it is attached immediately under *Q₀*, i.e. as a sister to *Q₁*. This last example is particularly telling because it shows that the root of the strategy must not be a super-question of the *daal*-answer as such – as long as it is the super-question to SOME part of this strategy.

Even though Jordanoska (2020) does not provide an explicit analysis of *daal* in advice imperatives, such as (4), such examples can be analysed in full parallel to (23) and (22) above. The super-question *Q₀* with all advice-imperatives is *What should ADD(ressee) do?*, which dominates the sub-question *Q₁ What are the facts?* and its answer. The *daal*-utterance conclusively settles the issue in providing the final answer in this strategy. This is shown schematically in (24) below.

- (24) a. Moytu-l **daal!** 'Just be careful!'

b.

Q₀ What should ADD do?

Q₁ What are the facts?

A₀ Be careful daal.

A₁ A man has been following ADD.

To sum up, the discourse-semantic analysis of *daal* in (20) can account for all its attested occurrences in a range of – at first sight – quite heterogeneous contexts. Moreover, as pointed out in Jordanoska (2020: 77ff.), it makes two additional predictions on the distribution of *daal*: First, *daal*-utterances should be infelicitous out-of-the-blue since they mark the final answer to some QUD. For a QUD to arise, there must be context. A case in point are warning imperatives, which typically come without a preceding context and do not license *daal*, cf. Jordanoska (2020: 79). Second, *daal* should be infelicitous in simple Q-A-strategies in which an answer directly settles an immediate QUD, with no intermediate steps. In such direct Q-A-pairs, there is no super-question required for the licensing of *daal*.

Whereas the second prediction is not explicitly discussed for Wolof *daal*, we observe that the same constraint applies to German *eben*. Next to its anaphoricity and its conclusive character, *eben* is also infelicitous in direct answers to a simple QUD, in the absence of a super-question, even if the particle is meant to settle the issue, cf. (25):

- (25) a. Context: Who told us the biggest nonsense yesterday?
 b. #Der Gianni hat **eben** den größten Quatsch erzählt.
 the Gianni has PRT the biggest nonsense told
 'Gianni told us the biggest nonsense.'

To my knowledge, this property of *eben* has not been explicitly addressed in previous literature. Together with the other two discourse-semantic properties of anaphoricity and inquiry-termination, this motivates a unified QUD-based analysis of Wolof *daal* and German *eben*, which eschews the problems of the table-based model.

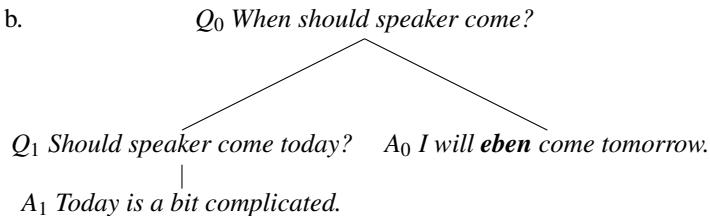
4.3 Extending the QUD-analysis to *eben*

Jordanoska's (2020) analysis of *daal* extends directly to standard instances of German *eben* if we assign this particle the same discourse-semantic meaning from (20):

- (26) $\llbracket eben S \rrbracket^c \approx$ The speaker c_S considers $\llbracket S \rrbracket$ their final answer to a super-question that (i) dominates *eben S*, and (ii) is the root of a strategy.

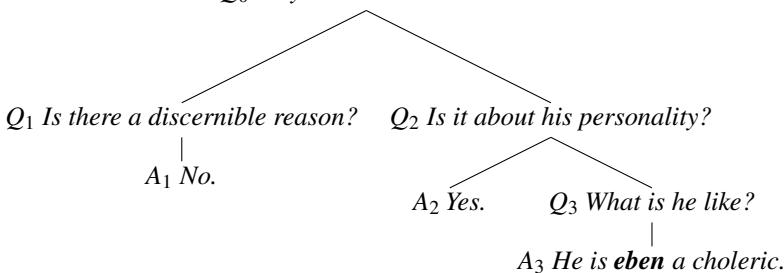
Refraining from repeating the Wolof analysis for the German advice imperative in (3), we analyse the standard inquiry-terminating occurrence of *eben* in (1) as follows:

- (27) a. Gut, komm ich **eben** morgen. ‘Alright, I will come tomorrow then.’



For example (7), we propose the QUD-structure in (28). Crucially, given what we said on the impossibility of *eben* in answers to immediate QUDs without additional sub-questions, the felicitous occurrence of *eben* in (7) points to the presence of a more complex question-strategy than that indicated by a simple direct answer to a *why*-question without *eben*.⁴

- (28) a. Er ist **eben** ein Choleriker. ‘He’s a choleric alright.’
 b. Q_0 Why did he make noise?



Summing up, assuming the lexical meaning in (20) for German *eben* allows for a unified cross-linguistic analysis for Wolof and German, and it provides an

⁴This is evidenced by the fact that the *eben*-utterance in (28-a) is infelicitous as an answer to the direct *why*-question in (i-a). Conversely, the omission of *eben* in (7) above also leads to some discourse deviance, as the absence of the question-evoking particle makes it difficult to reconstruct the underlying chain of implicit questions, cf. (i-b):

- (i) a. Q: Why did our neighbour make noise? A: Er ist (# eben) ein Choleriker.
 b. B: Our neighbour made a lot of noise today. A: Er ist # (eben) ein Choleriker.

account for the parallel distribution of the two particles in discourse. In particular, the analysis gives an elegant account of the three characteristic discourse-semantic properties of *eben* without running into the empirical and conceptual problems of the table-based model discussed in Section 3.3: (i.) its discourse-anaphoricity; (ii.) its inquiry-terminating nature; and (iii.) its reliance on more complex discourse strategies than simple question-answer sequences. We conclude that a QUD-based analysis à la Jordanoska (2020) is superior to a table-based model when it comes to the analysis of German *eben*.⁵

5 Outlook: On the difference of *eben* and *ja*

We conclude our analysis of *eben* with a brief comparison to the German discourse particle *ja*, which has received much more attention in the formal semantic literature; cf. Jacobs (1991), Karagjosova (2004), a.o.. Zimmermann (2011, 2018) suggests that German discourse particles fall into different semantic classes. Whereas some, such as *ja*, *doch*, and arguably *eben* have the organization of the flow of discourse as their primary function, others, such as *wohl* and *schon*, serve to express a modal (epistemic) modification of their prejacent; cf. Zimmermann (2011, 2018) for details. The question that we would like to address in this section is whether all discourse organizing particles, and in particular *eben* and *ja*, behave alike in semantic terms, or whether they sub-divide into further sub-classes.

At first, this question would appear to receive a negative answer, as the two particles have some properties in common. Same as *eben*, *ja* is categorical and issue-resolving, and it presents the content of its prejacent as non-debatable, cf. (29). Moreover, *ja* is also illicit in direct answers to an immediate QUD without sub-questions, cf. (30).

- (29) Katharina ist *ja* Professor-in in Frankfurt/Main.
 Katharina is PRT professor-FEM in Frankfurt/Main
 ‘Katharina is professor in Frankfurt on the Main, y’know.’
- (30) a. Q: Who won the match yesterday?
 b. Japan hat (#ja) das Spiel gewonnen.
 Japan has PRT the match won
 ‘Japan has won the match, y’know.’

On closer inspection, though, there are a number of important differences.

⁵We agree with previous authors that *halt* should come with a related but weaker reading. One possibility would be that *halt* simply indicates that the proffered proposition makes reference to some super-question while dropping the condition that the *halt*-utterance is necessarily the final answer. This would leave sufficient room for alternatives.

First, *ja* is non-anaphoric and can be used out-of-the blue. Second, *ja* is felicitous with modalised subjective statements, whereas *eben* is not, cf. (31).

- (31) a. Q: Where is Katharina?
 b. Keine Ahnung. Vielleicht ist sie **ja** / #**eben** im Kino.
 no idea perhaps is she PRT / PRT in.the cinema
 'No idea. Perhaps she is at the movies.'

In view of (31), Schneider (2022) takes up an original idea by Jacobs (1991) and proposes that *ja* is not sensitive to QUD-structure. Instead, it functions as a modifier on speech-act operators: *ja* marks a special subtype of assertions by modifying their assertive force such that the prejacent proposition is directly pushed into the Common Ground without placing *p* on the table. In other words, *ja* indicates that there is no issue to be settled. This is possible (i.) whenever *p* is contextually grounded (Clark 1992) in the preceding discourse, or by the extra-linguistic context, or through world knowledge, or (ii.) with subjective epistemic statements, such as (31). What is added to the CG in case of (31-b) is the proposition *p* in (32), according to which the speaker thinks it possible that Katharina went to the movies.

- (32) $p = \lambda w. \forall w' \in DOX(\text{speaker}, w): \exists w'' \in EPIST(\text{speaker}, w') \wedge \text{Katharina goes to the movies in } w''$

Crucially, such subjective speaker commitments are non-negotiable and can be added to CG without further ado, i.e. without negotiation and acceptance by the other discourse interlocutors. Schneider (2022) models this meaning contribution elegantly in the Table Model from Section 3.1 above: *ja*-modified assertions add propositions directly into the CG without placing them onto the table, and without modifying the projected set. The categorical flavour of *ja* follows directly: *ja*-clauses do not raise issues in the first place instead of resolving issues, which is what *eben*-utterances do. The non-anaphoricity of *ja* follows since *ja*-utterances do not make reference to an issue that is raised in the form of a question-based strategy. The infelicity of *ja* in direct answers to immediate QUDs follows if answers to genuine questions must be placed on the table for acceptance by the other discourse interlocutors.

Given the different discourse-semantic effects of *eben* and *ja*, we tentatively conclude that different German discourse particles should receive different formal treatments. Some, such as *ja*, make direct reference to the updating of information states of the interlocutors, and they can therefore be adequately modelled in the Table Model (Farkas and Bruce 2010). Others, such as *eben* and *halt* make reference to the flow of information and the development of issues in a question-based discourse game, and should therefore be modelled with the help of QUD-trees, cf. Roberts (2012), Büring (2003), Riester et al. (2018).

For a unified treatment of all discourse particles, this finding would seem to call for a richer unified model that registers (i.) the interlocutors' knowledge and commitment states, and (ii.) the development of issues in a discourse in the form of questions. While a possible candidate for such a model may be the *Commitment Space*-model of Krifka (2015) et seq., we will have to leave the quest for a unified model of different discourse particles for another occasion. The same holds for the investigation of particle systems in other African languages beyond Wolof. Alles Gute, liebe Katharina!

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