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# Franco-German Call in Humanities and Social Sciences

**Non-thematical** 

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Complex Predicates in Languages: Emergence, Typology, Evolution

Com P L E T E

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# **1 PROJECT PRESENTATION**

# 1.1 Project team and Partners

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# **1.2 Project title and acronym**

Title: "Complex Predicates in Languages: Emergence, Typology, Evolution"

Acronym: *ComPLETE* 

# **1.3** Scientific discipline and field of research

Linguistics

# 1.4 Duration

36 months

## 1.5 Summary

Although the term "complex predicates" is well established in linguistics, it is still a theoretical challenge. Complex predicates are generally defined as sequences of phonologically independent words, which together behave like a single predicate; but this definition covers a broad range of constructions whose boundaries are not clear. For that reason, we focus on *verb-based complex predicates* (VCP), defined as grammatical constructions serving as a predicate to a single subject, and involving at least two lexical items belonging, synchronically or diachronically, to the class of verbs. This definition includes serial verbs, converbs, light verbs and auxiliaries: these share certain functional properties and sometimes follow parallel historical dynamics. The "*ComPLETE*" project aims to carry out a systematic analysis of complex predicates on formal and semantic grounds, from the perspectives of synchrony, diachrony and areality.

As the available data is limited to certain language families and geographic areas, *ComPLETE* will base its analyses on a wide range of language families, in line with the expertise of the participants. First, the project will develop a typological questionnaire for guaranteeing cross-linguistic comparability. Based on the answers provided by linguistic experts, three research questions will be addressed: (1) Can we identify cross-linguistic dependencies between the *semantic* domains associated with complex predicates (e.g. tense-aspect-mood, spatial orientation) and specific *formal* properties? (2) How can we model the diachronic evolution of these structures, in terms of grammaticalization and lexicalization? (3) How are complex predicates distributed across the world's linguistic areas or language phyla?

The core teams from France and Germany are composed of four linguists with a long experience in linguistic fieldwork, cross-linguistic comparison and typology. Each country will recruit one PhD student and one postdoctoral researcher: in Germany, the postdoc (50%) will be responsible for coordination; in France, s/he will conduct a synthesis on a linguistic area, and bring in expertise in statistics. Together, they will collaborate with computational engineers to build a database.

The *ComPLETE* team will also receive contributions from 14 full-fledged participants and 14 external partners – linguists with expertise on a large number of language families, and on a wide range of theoretical issues. At the end of three years, the ComPLETE project will present a joint volume with a position paper and chapters by all contributors. Our database and analyses will be publicly accessible online through the open-source platform of *Cross-Linguistic Linked Data* (CLLD).

# 2 **STATE OF THE ART, PRELIMINARY RESEARCH WORK**

# **2.1** State of the art

#### 2.1.1 Definitions

The term "complex predicate" is well established in linguistics (Alsina et al. 1997, Andrews & Manning 1999, Amberber et al. 2010, Nash & Samvelian 2015), yet its boundaries are not fully clear and the criteria of its definition are often based on limited data.

In principle, a complex predicate consists of a sequence of phonological words which together behave like a single predicate. Given the broad range of constructions to which this description applies crosslinguistically, all-embracing definitions of complex predicates are rather general. Thus, Alsina et al. (1997) define them as "predicates which are composed of more than one grammatical element (either morphemes or words), each of which contributes a non-trivial part of the information of the complex predicate".

The latter definition leaves quite some leeway for including or excluding specific linguistic constructions. Thus, it could apply to predicates as diverse as COPULA + NOUN PHRASE, VERB + INCORPORATED NOUN, VERB + ADVERB, VERB + ADJECTIVE, or VERB + VERB. Our project will restrict its object of study to the latter case, i.e. verb-based complex predicates:

#### (1) DEFINITION OF A VERB-BASED COMPLEX PREDICATE (VCP)

A verb-based complex predicate is a grammatical construction serving as a predicative constituent to a single syntactic subject, and involving at least two lexical items belonging, either synchronically or historically, to the class of verbs.

While the VCP category delineates a subset among all possible complex predicates, it is sufficiently broad to encompass a number of CP constructions that have been discussed in the literature:

- 1. serial verb constructions (SVC)
- 2. **converb** constructions (CVB)
- 3. **light verb** constructions (LV)
- 4. **auxiliary** constructions. (AUX)

This project description focuses on these four syntactic types, knowing that more types of VCP may be identified later in the course of our project.

The rationale for delimiting the focus of our project to **verb-based complex predicates** is twofold. Practically, a definition trying to encompass all possible types of complex predicates would make it unrealistic to complete a typological study within the limits of 3 years. Theoretically, many of the diagnostics applicable for verbal predicates (see 3.1.1.2) may not apply to complex predicates with a different make-up. Our focus on the above different types of VCPs covers a coherent domain, whose internal diversity can be observed with higher precision.

In order to qualify as a VCP as under (1), the predicate must include words identifiable as VERBS *in the system of the language considered*. Indeed, systems of word classes are defined languageinternally, and vary across languages: e.g. some languages treat adjectives as a subclass of verbs, some are omnipredicative, etc. (Bisang 2011, François 2017). Thus, a resultative construction of the type (wipe s.th. clean), combining VERB + ADJECTIVE, does not qualify as a VCP in English – but our study will include constructions of the type VERB + VERB, as in an SVC (*wipe be-clean*).

# 2.1.2 Verb serialisation

Most generally, **SVCs** are defined as "a sequence of two or more verbs which in various (rather strong) senses, together act like a single verb" (Durie 1997:289-290). They differ from other types of VCPs by the fact that each component verb is marked like an independent verb (Collins 1997, Aikhenvald 2006, Bisang 2009, Haspelmath 2016). Many linguists explicitly point out the sharing of arguments and TAM marking as a criterion for defining SVCs (Collins 1997), at least in the typical case, as in (2) and (3) below:

(2) **Thai** 

*Kháw law* maphráaw maa he take coconut come 'He brings a coconut.'

(3) *Teanu* 

U-waii-ka!U-waiu-mabui!2sg:Irr-paddle3sg-come2sg:Irr-paddle2sg:Irr-be.slow'Come this way (on your canoe)!Come slowly!'

SVCs are prominently found in West African languages (Lord 1993, Ameka 2003), in Khoisan languages (Kilian-Hatz 2010, Haacke 2014, Rapold 2014), in East and mainland Southeast Asia (Bisang 1992, 1996), in New Guinea (Pawley 1987, 1993; Foley 2010; Unterladstetter 2020), in Oceanic (Crowley 2002; Bril & Ozanne-Rivierre 2004), and in various languages of the Americas (Aikhenvald 1999, Aikhenvald & Muysken 2011). As several studies have shown (e.g. Bisang 1995, Aikhenvald 2018), the term SVC really encompasses different types of constructions – cf. 'nuclear-layer' vs. 'core-layer' serialization (Foley & Olson 1985).

# 2.1.3 Converbs

**CVBs** are defined as dependent verb forms in adverbial clauses and, according to some linguists, also in sequential constructions (Haspelmath & König 1995 for different approaches). With this definition, CVB constructions clearly go beyond VCPs; but there is a subclass of CVB constructions that combines a dependent-marked CVB with another independent-marked (finite) verb. Such structures behave similar to SVCs (Bisang 1995), AUX constructions (Vanhove 2017), and VCPs in general. () illustrates a Japanese CVB:

(4) Japanese

Kokonattu o **mot-te ki**-masi-ta coconut Acc take-**сvв** come-polit-psт 'He brought a coconut.'

CVBs are characteristic of Transeurasian languages (Turkic, Mongolic, Manchu-Tungusic, Korean, Japonic), Finno-Ugric, various languages of the Caucasus, and of the Ethiopian area. They are comparable to the gerund-like constructions of Russian (*deepričastie* forms) and of Romance languages.

# 2.1.4 Light verbs and auxiliaries

Although they are treated separately in the literature, **LVs** and **AUX** share some similarities. Indeed, they both combine two verb-like words, of which one is inflected, while the other is not (infinitive, participle, etc.).

In French, avoir 'have', used as an AUX, encodes the past tense of transitive and unergative verbs:

(5) **French** 

 Paul
 a
 mangé
 une
 pomme

 Paul
 HAVE.PRST:3sg
 eat:PCP
 INDF
 apple

 'Paul ate an apple.'

In Urdu, the LV *li-* 'take' encodes telicity/completion:

(6) *Urdu* (Butt 2003)

nadya=ne xat **likh li**-ya Nadya=ERG letter write <u>TAKE</u>-PFV.M.SG 'Nadya wrote a letter completely.'

A similar type of LV are found in languages of northern Australia (McGregor 2002, 2018), also known as 'coverb constructions'. These constructions consist of a main lexical verb plus a lexically defective verb – "light verb" in Bowern (2014). Rather than encoding TAME values like AUX often do, these LVs express such grammatical functions as telicity, direction of movement and valency. In (7), 'push back' combines with LV 'TAKE':

#### (7) Ngarinyin

jarug andu-ø-ma-nga-lu push.back 3pl.acc-3sg.NOM-<u>TAKE</u>-PA-PROX 'He pushed them back this way.'

Certain main verbs can combine with different LVs. The resulting semantic differences have inspired McGregor (2002, 2018) to describe LVs as "verb classifiers".

(8)	Nyulnyul		
	<b>durr</b> 'push, bump'	+ -w 'give' + -BARNJ 'exchange'	→'push, give a push' →'push one another'
	<b>mijal</b> 'sit'	+ -N 'be' + -NY 'get'	→'be sitting' →'start sitting down'

In spite of their morphological similarities, AUX and LVs differ in their semantic contribution. AUX generally encode Tense or other clause-level semantic features, and combine productively with most verbs. In contrast, LVs typically encode verbal aspect or Aktionsart; they are selected by the lexical meaning of the L-verb, sometimes forming with them a single lexical entry (Butt 2003, 2014). It is precisely a goal of our project to compare these VCPs, and determine whether they form two distinct natural classes, or rather a continuum.

#### 2.1.5 Discussion

While the four types listed above are well established, their overall validity and their boundaries are still debatable. Thus, Haspelmath (1995) highlighted the strong influence of local research traditions in the study of CVBs.

Likewise, SVCs have long been the object of terminological debates. Durie (1997) ended up with the rather general definition cited in 2.1.2 after extensive discussion of a large amount of cross-linguistic data. As for Aikhenvald (2006:1), she acknowledges that her own definition of SVCs is only valid for some prototypical constructions, with many exceptions and borderline cases.

Haspelmath (2016:292) tried to establish a more limited definition of SVC as "a monoclausal construction consisting of multiple independent verbs with no element linking them, and with no

*predicate-argument relation between the verbs*". Aikhenvald (2018) criticized this definition as arbitrary, arguing that it excludes certain types (directional and causative constructions).

The verbal components of SVCs all occur in a form in which they can also occur as independent verbs. In contrast, the other three types are asymmetric in the sense that one component takes the independent (finite) form, while the others are marked as dependent or non-finite<sup>2</sup> (Bisang 2007, 2016). Sharing such asymmetries is one of the reasons why boundaries between these types are contentious. Butt (2003, 2010) offers good arguments for distinguishing LVs from AUX in Urdu, but the contrast may be less clear in other languages.

Many authors of language-particular descriptions, even typologically oriented ones, often use idiosyncratic terminology for the verbal components of VCP constructions, e.g. "verbal base" for Chukchi (Dunn 1999). Certain notions such as "infinitive", "supine", etc. often designate elements of VCPs; thus Martin (1992) on Korean uses "infinitive" for a type of CVB used in VCPs. A final problem already mentioned in the context of CVBs is polyfunctionality, in the sense that one and the same verbal component has properties which fit the definition of VCPs, and others that go beyond [(33)-(34) in 3.1.1.2].

# 2.1.6 Our project

Our proposal aims at a better understanding of verb-based complex predicates by taking a typological perspective, through a systematic and coherent analysis of cross-linguistic data. Given the diversity both of linguistic systems and of theoretical approaches, progress in this field requires us to work top down (reading the literature to infer a taxonomy and conceive a questionnaire) as well as bottom up (assessing the results quantitatively to observe natural clustering of features). As detailed below (3.1, 3.2), we will thus design a typological questionnaire for describing and comparing a broad range of grammatical constructions across languages along various parameters.

The online database presenting our observations will then serve as an empirical basis for qualitative and statistical analyses, with the aim to identify typological tendencies of VCPs, synchronically and historically. Given that VCPs are not equally important cross-linguistically, we will not work with the traditional method of a balanced sample but rather focus on information from as many languages as possible from those families and areas in which they are prominent, adopting the more recent spirit of typological research as discussed in the context of Dunn et al. (2011; see also the discussion in *Linguistic Typology* 15, 2011). With such data it is possible to model crosslinguistic variation and to detect correlating factors in terms of areality and phylogeny. They can then be further compared across all relevant areas and languages.

While our project has a major typological orientation, its outcomes are likely to contribute to theory building. In particular, it will provide a typological assessment of the validity of concepts such as SERIAL VERB, CONVERB, LIGHT VERB and AUXILIARY for their use as 'comparative concepts' (Haspelmath 2010). Clearly, these concepts are typologically valid to the extent that they show clustering in terms of relevant diagnostics (cf. 3.1). If diagnostics show that the distinction between certain types is in fact scalar, this would have repercussions for both typology and linguistic theory. Indeed, the typological relevance of many concepts in this domain remains currently unclear. This even holds for such notions as "infinitive" or "gerund" and other terms for complements of AUX constructions.

The typological literature includes various publications on CVBs (König & Haspelmath 1995), SVCs (Dixon & Aikhenvald 2006) and AUX (Heine 1994). To these, one should add the many works that

<sup>&</sup>lt;sup>2</sup> For counter-evidence from Afroasiatic languages, where both components of an auxiliary construction can be independent forms, see Simeone-Senelle & Vanhove (1997, 2003b).

document particular construction types in individual language families or areas: Bril & Ozanne-Rivierre (2004) on serialization in Oceanic, Aikhenvald & Muysken (2011) on multi-verb constructions in the Americas, Cohen et al. (2002) and Güldemann (2005) on LVCs in North-East Africa, Cohen (1984) on AUX in Semitic, etc. However, as far as we know, no systematic typological investigation has yet been proposed that would bring together and compare the various types of VCPs.

#### **2.2 Previous research work**

The four main researchers of this project (Bisang, Malchukov, Vanhove, François) are all experts in the crosslinguistic analysis of grammatical structures, whether through their work in language description and analysis, or through their knowledge of linguistic typology and theory. Bisang, Vanhove and François will act as applicants/PIs, while Malchukov will act as a project coordinator, as he applies for a 50% post-doc position for the duration of the project (3.2.4).

Their expertise is complementary both in terms of language families and in terms of types of VCPs. The research of Bisang and François focuses on SVCs, while Malchukov's and Vanhove's work concentrates on VCPs with asymmetric verb marking, i.e., CVBs, LVs and AUX. Bisang's work on SVCs mainly deals with East and Mainland Southeast Asian languages (EMSEA); François's work on Austronesian; Malchukov is an expert of Manchu-Tungusic and Transeurasia in general; Vanhove's focus is on Cushitic and Semitic.

W. Bisang worked extensively on SVCs in EMSEA (Bisang 1992, 1996, 2017a) and in general (Bisang 2009). In his work on grammaticalization, SVCs are described as one of the main sources of grammaticalization in EMSEA (Bisang 2010, 2017b). His more general work of relevance for VCPs in this proposal is important from two perspectives. As pointed out in Bisang (1995), languages with SVCs, CVB constructions, and root serialization show remarkable parallelisms in the formation of lexical compounds, resultatives, directional verbs, TAME marking, coverbs and causatives. While he emphasized the similarities across these types of VCPs, there are also differences in terms of productivity and the extent to which the relevant markers in these constructions belong to grammar or the lexicon. In Bisang (2001, 2007, 2016) on finiteness, he introduced the notion of symmetrical/ asymmetrical marking of grammatical categories on the verb or within the clause for distinguishing independent (finite) from dependent (non-finite) clauses. The crosslinguistically relevant grammatical categories are illocutionary force, tense/aspect, person, politeness, case and information structure. The first four categories are also relevant for distinguishing SVCs from the other types of VCPs. Until March 2020, Bisang was leading a project on grammaticalization in Mainz, which can be seen as a forerunner to the envisaged project as far as the areal distribution of diachronic paths is concerned (Bisang & Malchukov eds. 2017, Bisang & Malchukov eds. 2020).

**A. Malchukov** worked on VCPs as he studied (Malchukov 2004) the typology of nominalizations (since some nominalizations are employed in VCPs as "infinitives"); as he explored the typology of CVBs and taxis/relative tense relations (Malchukov 2011); and more broadly, in his work on grammaticalization and reanalysis in Siberian languages (2013). Two recent articles (Malchukov & Czerwinski 2020a,b) provide an overview of complex constructions (in particular CVBs), and verbal categories (including those expressed periphrastically) in Transeurasian (macro-Altaic languages). Malchukov acquired extensive experience in developing questionnaires during his work on various projects at the Leipzig *Max Planck Institute for Evolutionary Anthropology* (Comrie, Haspelmath, Malchukov 2010 on ditransitive constructions, Malchukov et al. 2015 on valency classes, Malchukov et al. n.d. on nominalizations, as well as more recently in Mainz together with W. Bisang – Bisang et al 2020b).

**M. Vanhove** worked extensively on the evolution of verbal systems and TAM categories via the grammaticalization of VCPs involving AUX and LVs in Afroasiatic languages, in particular Maltese (Semitic), Afar, Beja and Cushitic languages in general (1993, 1997, 2000, 2003a, 2003b, 2004, 2007). One of her papers (2001) deals with the issue of language contact in the development of VCPs. She is also an expert on LVCs in Cushitic (2002, 2007), and on the evolution of CVB constructions. Her 2016 paper on the refinitization of the Manner CVB in Beja explains the grammaticalization path from a deranked subordinating construction to a perfect paradigm. A whole chapter in her 2017 grammar of Beja is dedicated to VCPs, showing that auxiliaries do not only concern TAM, but also assertion. She is also a typologist, especially in the domain of lexical typology (2008, etc.); she recently contributed to *Grammaticalization Scenarios* edited by Bisang & Malchukov (2020), with an article on Cushitic.

**A. François** conducted extensive fieldwork in Island Melanesia, in the Solomons and Vanuatu, where he collected primary data on 23 Oceanic (Austronesian) languages. He has published papers on SVCs and the syntax of "macroverbs" in Mwotlap (2000, 2004, 2006), focusing on valency issues, and on the historical dynamics of serial constructions. His 2003 monograph describes the complex TAM system in Mwotlap, which is also relevant to VCPs. His grammar of Araki (2002) includes a chapter on clause serialization, another form of VCP distinct from SVCs; similar structures are found in Teanu, a language of the Solomons (2009a). François has also studied non-verbal predicates in Mwotlap (2005); the grammaticalization of aspect markers (2009b, f/c *a*); subordination patterns in Hiw and Lo-Toga (2010); ditransitive constructions in Araki (2012); lexical and grammatical flexibility of word classes in Hiw (2017); verbal number in the two Torres languages (2019). His comparative work on Melanesian languages has revealed a dual trend in the area – a tendency for local innovations resulting in lexical divergence, but also, contact-induced structural convergence (2009a, 2011, 2012). He is also an expert in lexical typology and semantic change (2008, 2013, f/c *b*).

# 2.2.1 Other participants and partners

The project will recruit several junior positions (PhD, postdoc) who will be central to its development (see 3.2.4). In addition, *ComPLETE* will involve a network of renowned linguists who combine expertise in individual languages (or language families) with knowledge of historical linguistics and grammaticalization theory. Each expert will contribute data to the database, and a chapter to the edited volume.

On the **French side**, participants include 12 linguists, and 2 engineers (plus 2 linguist partners, not mentioned here).

- > **P. Boyeldieu** is a comparatist working on Nilo-Saharan, Ubangian and Adamawa languages. He worked on SVCs and compound verbs in Yulu (2005, 2007).
- B. Fagard specializes in the history of Romance languages and their processes of grammaticalization (Fagard 2011, Fagard & Mardale 2012), particularly in the domain of space relations and the expression of motion events (lacobini & Fagard 2011).
- > **S. Fedden** is a specialist of Mian (Ok, Papuan) (2011). His interests include morphological typology and issues of transitivity (2010) and interclausal relations (2012).
- G. Jacques is an expert of Tibeto-Burman (Tangut, Rgyalrongic, Kiranti). His research includes studies in phonology, comparative linguistics, syntax (2014, 2016). His work on VCPs addresses bipartite verbs in Japhug (2018).
- > **F. Mélanie-Becquet** is a research engineer, working on the conception and creation of linguistic databases, data format, and Digital Humanities (Mélanie-Becquet & Fuchs 2011).
- R. Meyer has many publications on Ethio-Semitic, in particular on CVBs (2012, 2014), AUX (2016), and LVCs (2009).

- C. Moyse-Faurie, an expert of Oceanic languages, has studied complex predicates (2004, 2012) and grammaticalization (2018).
- S. Riesberg has studied various languages of New Guinea, both Austronesian and Papuan. She has explored their voice systems and information structure (2018), as well as the expression of caused accompanied motion (Hellwig et al., f/c).
- S. Robert's research interests focus mainly on African languages as well as general linguistics, typology, and cognitive linguistics. She has worked on verbal systems and grammaticalization in Atlantic languages (1991, 2010, 2016, 2018).
- M.-C. Simeone-Senelle is a Semiticist (Arabic, South Arabian, Dahalik) and a Cushiticist (Afar, Saho). She has worked extensively on the evolution of AUX and LVCs (1993, 1996, 2002, 2003).
- A. Schapper studies the languages of Timor–Alor–Pantar (Papuan). Among others, she studied give constructions (Klamer & Schapper 2012), aspect (Huber & Schapper 2014), and the loss of morphology (Schapper 2020).
- L. Souag is a specialist of the Saharan linguistic area. He investigates language contact between Arabic and various varieties of Berber (2013). He has also described Korandjé (Songhay), in contact with Berber and Arabic (2015, 2018).
- > **T. Doan-Rabier** is a software engineer specializing in the programming of online databases and research tools.
- Y. Treis is a specialist of Cushitic (Kambaata), Omotic (Baskeet). She has worked on various grammaticalization processes in a typological and areal perspective (2014 eds, 2017, 2021), including the formation of tense (2011).

The **Mainz** team will collaborate with the following colleagues. **E. Skribnik** (U. München) agreed to work on Buryat (Mongolian), **T. Güldemann** (HU, Berlin) on Khoisan, **D. Forker** (U. Jena) on Daghestanian (Caucasus), **G. Haig** (U. Bamberg) on (West) Iranian, **I. Helmbrecht** on Hocank (Siouan), **D. Inman** (U. Zürich) on Wakashan (Canada), **M. Vuillermet** (U. Zürich) on Tacanan). All these colleagues are among the leading specialists in their disciplines. We also plan to involve participants of the Mainz grammaticalization project (*https://en.magram.fb05.uni-mainz.de*), e.g. **W. McGregor** who studied VCPs in Australian languages, and **M. Mithun**, a leading expert in North-American Indian languages.

Other contributors will appear as senior advisors – and potentially, plenary speakers at the conferences, due to their previous work in the domain of VCPs:

- M. Butt has worked extensively on the theory and typology of VCPs (e.g., Butt 1995, 2001, 2003, 2014)
- M. Haspelmath, a leading typologist, has published research on CVBs (Haspelmath & König 1995) and SVCs (Haspelmath 2016); as well as a study of infinitives (Haspelmath 1998)
- R. Van Valin is the author of many theoretical insights (Van Valin 2005) which have made way into the project (e.g. the *Interclausal Relation Hierarchy* in 3.1.1.3).

# **3 OBJECTIVES AND WORKING PLAN**

# **3.1 Objectives**

Given the state of the art in research on complex predicates described in 2.1, our proposal intends to pursue the following objectives:

- (i) conduct a typological classification of VCPs, based on their syntactic, functional and semantic properties [3.1.1]
- (ii) reconstruct and classify the various paths of diachronic change associated with VCPs, particularly in the form of grammaticalization and lexicalization [3.1.2]
- (iii) observe the distribution of different types of VCPs, in terms of phylogeny and areality [3.1.3].

# 3.1.1 Typological classification of VCPs based on formal and semantic properties

A look at the literature on VCPs shows that the four main types (2.1.1), in spite of their morphosyntactic differences, often yield comparable constructions, fulfilling similar phraseological strategies.

As a starting point for comparison, we will define these strategies semantically (3.1.1.1). They will then be checked for their morphological and syntactic properties across languages (3.1.1.2). The combination of these two perspectives will allow us to address different research questions (3.1.1.3).

This onomasiological approach, starting from semantics and examining its grammatical expression, follows standard methods of linguistic typology (Croft 2003:13-19). The questionnaire we intend to create for our contributors will integrate both perspectives, ONOMASIOLOGICAL and SEMASIOLOGICAL.

## 3.1.1.1 Constructions associated with VCPs: Crosslinguistic variation

For the sake of discussion, we contrast two main functional types of VCP constructions:

> [G-type] VCPs in which (at least) one of the component verbs has a more GRAMMATICAL meaning

> [L-type] VCPs in which all component verbs have their own semantics of full LEXICAL verbs.

While *G*-type is related to GRAMMAR and grammaticalization, *L*-type is related to the lexicon and to processes of lexicalization (see (vii) below).

The verb with the grammatical meaning in G-type constructions will be called G-verb, while the component bearing the lexical meaning will be referred to as L-verb. (That distinction is not relevant for L-type constructions, even if one component verb may combine with more hosts than the other).

Building on the distinction between G-type and L-type, this section introduces seven types of VCPs. The first six are based on the grammatical function expressed by the G-verb, the seventh type consists of lexicon-related constructions. These categories will be the basis for analysing and comparing the morphosyntactic properties of the four main types of VCPs (SVs, CVBs, LVs, AUX). The parameters to be observed in particular are the morphosyntactic properties of the G-verb; and the different morphological realizations of the L-verb [3.1.1.2].

## (i) Tense-Aspect-Mood-Evidentiality (TAME)

Languages commonly employ VCPs to encode particular meanings in the realm of Tense, Aspect, Mood or Modality, and Evidentiality (TAME). The G-verb (underlined) corresponds to the finite verb in a CVB construction, and to the LV or AUX in other types of structures. Thus the Progressive in (9) takes the form of a CVB construction; the Perfect in (10) is encoded by an SVC; the Future in (11) with an AUX:

#### (9) Japanese

Ima	mada	ne-te	<b>i</b> -ru	yo		
now	still	sleep-conv	be.there:ANIM-NON.PAST	DECLAR		
She's still sleeping at the moment.'						

(10) *Chinese* 

Nǐ **chī = guò** pángxiè ma? 2sg eat [go.by] EXPER] crab QUEST 'Have you ever eaten crab?'

(11) German Ich werde die Eier später kaufen 1sg [become|FUT] ART:PL egg:PL:ACC later buy:INFIN 'I will buy the eggs later.'

VCPs are also commonly used to encode PHASAL ASPECT. In (12a) from *Beja*, the terminal aspect is encoded with a CVB + AUX, in (12b) with finite forms for both components:

(12) **Beja** 

- a **dirar**-ti **b**?-e:na dine\MID-CVB.GNRL <u>lie.down</u>-IPFV.3PL 'They finish dining.'
- b i-na:ʃʔa bʔi-ja
   3sg.M-take.off\INT.PFV lie.down-PFV.3sg.M
   'He had finished undressing completely.'

In *Tungusic*, VCPs are commonly used to encode MOOD AND MODALITY: potential, deontic, hortative, etc. This is illustrated by *Even*, which encodes modality with an AUX construction:

(13) **Even** 

Badu-miturkuremride-cvbcannot:AOR.SG'I can't ride (a reindeer).'

## (ii) Resultatives

Resultative constructions usually consist of two verbs—one encoding an action, one the result of that action. Many languages encode resultatives through SVCs, like Mwotlap (François 2004:124):

(14) *Mwotlap* 

Kē(ni-vatnelolmeyen)gēn3sgIPFV-teachbe.wise1inc:pl'He makes us wise (through his teaching).'

Resultative (or causative) VCPs seem rather marginal in CVB languages (e.g. they are unattested in Tungusic), but they are very common in SVC languages (Aikhenvald 2018:75), particularly where adjectives are treated as a subclass of verbs.

#### (iii) Direction and associated motion

Many languages use the G-verb for expressing the direction of an action.

(15) Even MIRKE-niken EM-re-n crawl-CONV <u>come</u>-NFUT-3sg 'crawled here (lit. crawling come)' (16) **Beja** 

*baru: i-N*?*A i-S*?*A* 3sg.M.NOM 3sg.M-<u>be.down</u>:PFV 3sg.M-sit.down:MID.PFV 'He sat down.'

Link to this category is a slightly distinct pattern known as "associated motion" as in *Ese Ejja*:

#### (17) Ese Ejja

Inotawa=aanákwakwa-ka-jjeki-aniMaría=ERGanteatercook-3a-come(O)-PRS'María cooks the anteater that was brought.'

## (iv) Valency changes

VCPs can also signal valency change for an extra object (applicatives (18)) or an extra subject (causatives (19)):18

(18)	<b>Beja</b> ti=ſarti-ia	mha	i=t.	ko:=t=e:	i- <b>d?i</b>	i- <b>hi</b> =he:b
	DEF.F=line-P	L three	e=INDF.F	unit=INDF.F=POSS.3PL.ACC	3sg.m- <b>do</b> \pfv	3sg.M-give\PFV=OBJ.1sg
	'He drew t	three lin	nes for m	ne.'		
(19)	Thai					
	Deeng	tham	dèk	tòk-cay		
	Deng	make	child	scared		

Deng <u>make</u> child scared 'Deng scares/frightens the children.'

## (v) Adverbial meanings encoding manner

VCPs can also be used to encode the manner of the action expressed by the L-verb.

#### (20) *Mwotlap*

Na-bago (mi-**nit maymay**) kē ART-shark PFT-bite <u>be.hard</u> 3sg 'The shark bit him viciously.'

(21) **Teanu** 

A-mokoiu ai-ejau? 2sg:REAL-Sleep 2sg:REAL-<u>make</u> 'Did you sleep well?'

The verb 'make' in Teanu has acquired a new meaning ('[do] well') when found as the second verb in a SVC. This reading is semantically non-compositional: it is a clear case of "constructionalization" (Trousdale 2012, Traugott & Trousdale 2013).

Likewise in *Beja*, the LVC with 'say' encodes the rapidity of an action or its perfectness.

(22) **Beja** 

 $tik^w$ t=?arabija:j=t=i:a-nigo.downDEF.F=car=INDF.F=ABL.SG $1SG-\underline{say} \setminus PFV$ 'I got off the car quickly.'

(23) **Beja** 

u:n i=damm?ara **nhad** i-**ndi** PROX.SG.M.NOM DEF.M=gold finish 3SG.M-<u>Say</u>\IPFV 'This gold was completely finished.'

#### (vi) Intensification

Complex predicates can be used to encode intensification, in both affirmative and negative polarities (cf. *do* in English: 'I <u>do</u> like her'). Similar functions are played by certain VCPs in e.g. *Beja* and *Yulu*:

```
(24) Beja
```

*hak<sup>w</sup>ir-ti dann?i* tie-cvb.gnrl <u>do</u>\IPFV.[3sg.M] 'He did tie it.'

(25) Yulu

àap-51à 3.cry-<u>suffer</u> '(s)he cries a lot'

#### (vii) Lexicalization

LEXICALIZATION is the other main result of diachronic change in VCPs. It takes place when a VCP construction ceases to be semantically compositional, and is used routinely to encode a new lexical meaning.

This type of VCP is illustrated with SVCs in Oceanic and South East Asian languages. Mwotlap has many semantically non-compositional VCPs (François 2004:137):

#### (26) *Mwotlap*

 $d\bar{e}m \ veteg$  [think + leave] 'give up; forgive; omit' mat  $\bar{m}\bar{o}l$  [die + come.back] 'faint'

*Mandarin Chinese* is another case in point. In (27), the two verbs, which can still be used alone as well, have a fixed meaning and are obligatorily contiguous:

(27)	Chinese		
	cāi-xiǎng	[guess + think]	'reach an opinion, suspect that'
	lái-wǎng	[come + go]	'move to and fro'

The following example from Vietnamese shows the use of *làm* 'do, make' as a LV:

(28)	Vietnames	se	
	làm ăn	[do-eat]	'earn one's living'
	làm hỏng	[do-be.out.of.order/break.down]	'wreck, spoil, break up'

The phenomenon is cross-linguistically widespread (Turkic, Indo-Aryan, etc.).

#### 3.1.1.2 Morphological and syntactic properties

The different construction types described above can be checked for various morphological properties. Some pertain to broader issues of morphological and syntactic typology (#1-3 below), others (4-10) have been specifically informed by work on SVCs (e.g. Aikhenvald 2006). The question is to what extent they can be generalized to other types of VCPs.

We will create a questionnaire in which we ask our contributors to describe individual constructions along the same properties, so as to check whether functional properties cluster on specific formal types of VCPs. Answers to that questionnaire will feed our typological database (3.2.2). The lines below illustrate the sort of questions we plan to include in our questionnaire – but these will be refined in the course of our project.

## a. Morpheme order/marking patterns

- 1. Basic word order (VO/OV)
- 2. Order of G-verb and L-verb, i.e. [G-L] vs. [L-G].
- 3. Contiguity (Aikhenvald 2006): Must the component verbs of VCPs be positioned next to each other? This criterion is essential to certain types of SVCs, but is less relevant for other types of VCPs like AUX and LVCs.

# b. Shared grammatical information and scope

- 4. Do the component verbs share some or all of their arguments? This is a frequent criterion for defining SVCs (Collins 1997 on subject sharing; Durie 1997 on sharing core or other arguments), and AUX (Simeone-Senelle & Vanhove 2003b).
- 5. Do the component verbs share information on TAME? TAME sharing is another frequent criterion (Collins 1997, Aikhenvald 2018). The answer to that question may differ between different constructions even within the same language (cf. Nedjalkov 1995 on modifying vs. narrative CVBs). This question does not make sense if the AUX or the LV themselves express TAME functions.
- 6. Do the component verbs share polarity (negation)?

# c. Dependent vs. independent verb forms

7. If there are asymmetries between dependent and independent verb forms, which are the categories involved in creating this asymmetry? The following features are likely to be relevant: illocutionary force, tense/aspect, person and politeness (2.2). We may find additional categories.

## d. Productivity

8. How productive is the use of a given G-verb in constructions of types (i) to (iv)? i.e. can it occur with a large number of L-verbs, or is its use limited to a specific set of L-verbs?

## e. Closed vs. open word classes

9. Do all verbal components equally belong to the open word class of verbs, or does one of them belong to a closed subclass? (cf. Aikhenvald 2006 on "symmetrical" vs. "asymmetrical" constructions).

## Syntactic diversity among VCP constructions

The seven construction types described in 3.1.1.1 pertain to different structural levels. In the case of SVCs in Vanuatu languages, François (2004, 2006), following Crowley (2002), based on *Role & Reference Grammar* (Foley & Olson 1985; Van Valin 2005), showed that verb serialization may happen at the nuclear layer (=CHAINED VERBS) as in (29)–(30), yielding what he calls "macro-verbs" similar to a verb compound:

(29) Mwotlap

Talimi-tittententoKevinT.PRET1-punchcry~RESULTPRET2K.'Tali made Kevin cry by punching him.'

## (30) *Mwotlap*

Hiqiyig ni-**hō tēy** tita! someone AO-paddle hold Mum 'Someone takes Mum in their canoe!' Other languages of Vanuatu serialize their verbs at a higher level in the clause, the "core layer" as in (31)–(32):

(31) **Araki** 

 Raju
 mo=vari-a
 sule
 mo=plani-a
 mo=sa
 mo=jovi
 mo=sivo.

 man
 3:REA=take-3s
 stone
 3:REA=throw-3s
 3:REA=go.up
 3:REA=fall
 3:REA=go.down

 'A man brings a stone, throws it up in the air and waits for it to fall down on the ground.'

(32) **Bislama** 

Hem i **karem** kokonas i **kam** 3sg pred carry coconut pred come 'He brought a coconut.'

Rather than SERIALIZED VERBS properly speaking, (31)–(32) are best described as SERIALIZED VERB PHRASES (See also Bisang 1995 on 'serialization in a narrow sense' vs. 'serialization in a broad sense').

An important task will thus be to determine the position of VCPs between two endpoints, illustrated respectively by (30) and (32) above:

- > the lower boundaries of VCPs, akin to pure morphology (cf. root serialization, where a single verb form consists of more than one root; Bisang 1995; see 3.1.1.3, research question (C)).
- > the upper boundaries of VCPs, made of multi-clause structures.

In principle, higher or lower-level structures do not fit the definition of VCPs, and thus won't be included in our study. The only exception will be when the same type of construction is used both as a VCP and on a different level. For example, (33) in Japanese is a clear case of VCP encoding progressive aspect, and the same CVB suffix is also used in multiclausal constructions (34):

(33) Japanese

Cha o non-**de i**-ru. tea ACC drink-CVB be-PRS 'He is drinking tea.'

(34) Cha o non-**de** sinbun o yon-da tea ACC drink-CVB newspaper ACC read-PST 'He drank tea, and read a newspaper.'

Even though (34) is not a VCP, it deserves to be included in our reflections, because it involves the same CVB morphology as (33), which is a VCP.

## Selecting observable properties

The operationalization of certain parameters presents a challenge. For that reason, we excluded some popular parameters proposed in the literature, such as SVC denoting a 'single event', a property intuitively conceivable, but notoriously difficult to operationalize. Similarly, not all of the criteria proposed in Simeone-Senelle & Vanhove (2003b) for an auxiliary category can be easily turned into cross-linguistically valid diagnostics for VCPs ('forming a unique concept', 'being fundamental for communicative purposes').

## Weighing the relevance of different properties

As our questionnaire examines the same properties consistently across languages, this data will feed into a typological database (3.2.2), which will later be mined for statistical research. This will help us explore the question of DEPENDENCIES between different properties: e.g. is TAME encoded most often through AUX, CVB, or SVC? Are directional VCPs correlated with particular valency patterns? Should

some properties be weighted more heavily than others in terms of predictive power? This aspect of our project explains why we plan to hire a Postdoc with expertise in statistics (4.2.1.2).

## 3.1.1.3 Research questions

The combination of the data from the semantic (3.1.1.1) and the formal (3.1.1.2) sides provides the basis for analysing the following questions (objective (i) in 3.1):

(A) A typological classification of VCPs:

Are the four types of VCP clearly distinguishable phenomena clustering with clear-cut sets of shared properties? Do the seven functional types (3.1.1.1) and their morphosyntactic properties (3.1.1.2) constitute "natural classes", or do they form a continuum with fuzzy boundaries?

(B) A typologically informed taxonomy of the forms taken by L-verbs:

As seen in 2.1.5, some of the notions used in grammatical descriptions of individual languages are problematic for typologists (Haspelmath 2010b). Thus, the notion *'infinitive'* has not been accepted as a typological concept (Maas 1997 vs. Schmidtke-Bode 2014). Likewise, L-verbs in constructions involving AUX are sometimes described using the term 'participle' in European languages, while idiosyncratic terms are introduced for other languages (e.g. 'verbal bases' in Dunn's grammar of Chukchi). Terminological issues are also notorious with respect to the L-verb in LV constructions ('verb', 'coverb' or 'infinitive': Bowern 2014:266). The very notion of 'converb' raises similar issues of comparability (Haspelmath 1995), as does the internal diversity of SVCs (Haspelmath 2016 vs. Aikhenvald 2018). Our project will propose some standardised definitions for typologically comparable forms.

Some authors (e.g. Schmidtke-Bode 2014) have highlighted correlations between certain types of L-verb and semantic properties of the G-verb: e.g. modal and intentional G-verbs tend to govern an infinitive rather than a participle. Our database will make it possible to investigate such correlations more systematically. If certain G-verbs are better predictors for constructions which qualify as VCPs, then these can be used as core concepts for VCPs, in the same way as BREAK and HIT are for transitive structures (Tsunoda 1981; Haspelmath 2015), GIVE and TELL for di-

transitives (Malchukov *et al.* 2010), and GOOD and BIG for adjectives (Dixon 1982).

(C) Our data may help confirm independently some of the typological generalizations in the domain of clause combining - such as van Valin's Interclausal Relation Hierarchy (Fig. 1). Thus, looking at individual types of VCPs, one can ask to what extent they are distributed along the ranks of Van Valin's (2005) hierarchy, and whether their distribution supports these hierarchies (being contiguous, in compliance with typological hierarchies/semantic maps). In general, one can expect that VCPs will be rather associated with the higher seg-

Strongest	Closest
Nuclear Cosubordination	Causative [1] Phase
Nuclear Subordination Daughter Peripheral Nuclear Coordination Core Cosubordination	Manner Motion Position Means Psych-Action Purposive
Core Subordination Daughter Peripheral Core Coordination	Jussive Causative [2] Direct Perception Indirect perception Propositional Attitude
Clausal Cosubordination	Cognition Indirect Discourse
Clausal Subordination Daughter Peripheral Clausal Coordination	Direct Discourse Circumstances Reason Conditional Concessive
Sentential Subordination Sentential Coordination Weakest	Simultaneous Actions Sequential Actions Situation-Situation: Unspecified Loosest

Fig. 1 — Van Valin' (2005) Interclausal Relation Hierarchy

ments (modals, phasals, directional, causatives, etc.) than with lower segments; and that languages will differ to the extent the strategy used for VCPs is extended to lower levels.

The presence of Van Valin among participants in our project will help addressing these theoretical and typological issues.

# 3.1.2 Diachronic changes in VCPs: processes of grammaticalization vs. lexicalization

# Grammaticalization vs. lexicalization revisited

Historical processes of grammaticalization and lexicalization can be distinguished (Himmelmann 2004): in the case of VCPs, the most relevant features are [8] 'productivity of the construction' and [9] 'closed vs. open class'. If a verbal component can combine productively with other verbs, this can be taken as a case of grammaticalization (Bybee 1985). This is typically represented by an individual *G-verb* (e.g. a verb marking tense) that can combine with a large number of *L-verbs*. In the case of lexicalization, productivity is highly variable. In extreme cases, each of the component verbs just occurs in that specific combination with a specific non-compositional meaning ; cf. ex. (26)–(28).

Closed-class *vs.* open-class membership of the component verbs is relevant for distinguishing grammaticalization from lexicalization not only in SVCs (Aikhenvald 2006), but also with CVBs (Bisang 2009) and AUX (Simeone-Senelle & Vanhove 2003a,b). As suggested by Bisang (2009: 809-810), both processes can be looked at from the starting position of 'symmetrical constructions' (cf. Aikhenvald 2018:80-86), in which all component verbs are taken from the open word-class set of verbs.

In cases of GRAMMATICALIZATION, typically only one component of a VCP belongs to a closed word class (G-verb), while the other one (L-verb) can be any verb in the lexicon. By contrast, LEXICALIZATION is characterized by the reduction of both verbs to a small set of possible verbs. Fig. 2 illustrates the two pathways:



Fig. 2 — (adapted from Bisang 2009: 809)

Based on these general observations, we are pursuing the following research questions:

- (D) What are the grammaticalization paths found in VCPs? Do certain types of VCPs (SV, CVB, LV, AUX) favour specific G-verbs associated with a specific domain of grammar?
- (E) Are there specific lexical domains associated with specific types of VCPs?

## On grammaticalization (D)

As part of our questionnaire, we will propose a list of (G-)verbs as potential source concepts for grammaticalization. At the moment, the following source and target concepts seem to be good candidates for VCPs (see Heine & Kuteva 2000):

go	> ANDAT	do	> CAUS	arrive	> POT	get	> PASS
go	> PROG	give	> CAUS	finish	> CPLT	know	> HAB
be.at	> CONT	give	> PASS	say	> REP	love	> INTSF
live	> CONT	give	> BENEF	say	> DESID	die	> INTSF
sit	> CONT	have	> PFV	see	> CONAT	say	> EVID
stand	> CONT	throw	> CPLT/PFV	hold	> INSTR	take	> OBJ
соте	> CONT	become	> POT	see	> PASS	take	> FUT
cross	> EXP.PAST	get	> POT	fall	> PASS	want	> FUT

Table 1 – Sources of grammaticalization  $\rightarrow$  Targets of grammaticalization

The design of our work is similar to the one in the Leipzig Valency Project (Malchukov et al. 2015), starting with a predefined list of 80 verb meanings for studying their valency patterns cross-linguistically. A similar method has also been used in the Mainz Grammaticalization project (see 2.2.1) which started from a list of 30 grammaticalization sources to study areal variation in grammaticalization paths.

#### On lexicalization (E)

Lexicalization patterns are more difficult to generalize, so it will be achieved in a bottom-up approach, based on feedback from the participants.

At the moment	, we can propose	the following	sample of	(co)lexicalization	patterns:
---------------	------------------	---------------	-----------	--------------------	-----------

take+come	> BRING	sleep+disappear	> SLEEP SOUNDLY
go+hold	> CARRY	die+return	> FAINT
see+ know	> RECOGNIZE	think+snap	> DECIDE
eat+full	> BE FULL	pinch+laugh	> TICKLE
cut+small	> MINCE	sit+breathe	> PAUSE
take+lift	> REMOVE	think+suffer	> WORRY
take+leave	> ABANDON	laugh+die	> LAUGH HYSTERICALLY
think+leave	> FORGIVE	think+be.heavy	> RESPECT
talk+play	> JOKE	say+await	> WARN
think+find	> REMEMBER	look+steal	> SPY

Table 2 – Some lexicalization patterns

Crosslinguistic patterns of lexicalization are less well known than those of grammaticalization. Boyeldieu (2007), in his description of 'compound verbs' in **Yulu** (Sudanic), lists many subtypes familiar from grammaticalization research, while lexicalization patterns appear as 'others' – with a remark on the challenge of generalizing across lexicalization patterns. We expect that our project will contribute to a better understanding of typological paths of lexicalization.

## 3.1.3 Areal and phylogenetic issues

The results to diachronic questions (**D**) and (**E**) can then be assessed in terms of processes of transmission: What changes spread through areal contact? Which ones are characteristic of specific language families?

(F) Are there grammaticalization or lexicalization patterns with a specific areal or phylogenetic distribution?

We plan to plot the data collected on grammaticalization and lexicalization onto WALS-style maps (Haspelmath *et al.* 2005; Dryer & Haspelmath 2013), indicating the geographical distribution of particular types.

Areal patterns of grammaticalization can be illustrated through the following patterns of periphrastic TAME forms in Transeurasian/Macroaltaic languages (Malchukov & Czerwinski 2020a):

>	GO > progressive
	Turkish =yor=; Korean -a/e ka-, Japanese -te ik-
>	SIT, STAND > continuous
	<i>Turkic tur-</i> ; <i>Mong</i> . <i>soo-</i> 'sit, dwell, live' > 'do something continuously'
>	THROW > perfective/completive/intensive
	<i>Mongolian oryx</i> - 'throw' > 'do completely', <i>xay</i> - 'throw (away)' > 'do rapidly and completely';
	Korean -a/e peli- from 'throw away'
>	GIVE > benefactive
	Mongolian eug-; Korean -a/e cwu-; Japanese -te kure-, -te age-
>	SEE > conative
	Turkic kör- 'see, try' (cf. Uzbek ye-b kör- 'try to eat'; Johanson 2012: 760); Mong. udz- 'try';
	Manchu tuwa-; Korean -a/e po-; Japanese -te mi-
	It is often difficult to distinguish between independent developments within individual phyla an

It is often difficult to distinguish between independent developments within individual phyla and contact-induced change. Our project will help resolve some of these issues by looking at broader typological distributions of individual patterns in the domain of VCPs.

Just like for grammaticalization, areal studies can be carried out in the domain of lexicalization, in line with Urban's (2012) cross-linguistic work on lexicalization patterns.

# **3.2** Research plan, methodology design and timeline

In sum, our aim will be to achieve the three research objectives listed in 3.1:

- i. typological classification of complex predicates, based on their formal and functional properties
- ii. grammaticalization and lexicalization
- iii. areality and phylogeny.

This section presents our methodology and plans to reach that goal.

# 3.2.1 Cooperation

Mainz University (PI W. Bisang and coordinator A. Malchukov) will coordinate the whole project at the scientific level, and the administrative level for the German part (organization, budget, reporting to DFG). LLACAN (with PI M. Vanhove) and LATTICE (with Co-PI A. François) will ensure the coordination with the French partners, and, for LLACAN, the administration for the French team (organization, budget, reporting to ANR).

Our team has experience with typological projects on the same scale, aiming at producing a comparative handbook and an accompanying database – such as the *Leipzig Valency Classes Project* (*http://valpal.info/about/project*, MPI–EVA Leipzig) and the Mainz Grammaticalization Project. This experience has shown that these projects are very labour intensive, both logistically and substantially, with respect to qualitative analysis of the datasets and subsequent quantitative analysis of the whole data. The qualitative analysis and evaluation of the datasets, partially extracted from the handbook contributions, will be largely performed by the German team (post-doc and doctoral student), while

the database implementation and statistical evaluation by the French team (post-doc and PhD student – in collaboration with software engineers). (On the complementarity of expertise, see 2.2).

In addition to regular exchange, the PIs and their teams plan to meet four times (one online) during business meetings (BM), held in Paris and in Mainz. There will be also business meetings on the occasion of the two conferences (one online), held together with participants and partners. The two online meetings are due to unpredictable developments with Covid 19.

s1				BM1	online	
s2	2 doctoral students 1 postdoctoral researcher (Malchukov)		1 postdoctoral researcher	Conference	online	
s3				BM2	Paris	
s4	<36m>	<36m, 50%>	<24m>	BM3	Mainz	
s5	(Fr, D)	(D)	(Fr)	Conference	Paris	
s6				BM4	Mainz	

Table 3 – Schedule for the whole project, by semester (s1–s6)

BMs will help us coordinate our work and discuss questionnaires, data analysis, theoretical interpretation of data, conception of the database, organization of the conferences. During BM2, we will consolidate the database together with engineers and the French postdoc.

Data and results will be discussed with the participants and partners in two conferences. During online CONF1, at the end of year 1 (4.1.5), people will present their reactions to the draft questionnaire, and help fine-tune its conception; their presentations will be a first draft of their chapter for the edited volume. CONF2, to be held in Paris in SEM5 (4.2.5), will present the final papers; our discussions then will focus on a comparative analysis concerning our three research questions (3.1).

Participants and partners will be mainly involved in objective (i); we will discuss with them our findings based on our statistical methods, in the context of objectives (ii) and (iii).

### 3.2.2 Methods

#### Creation of a typological questionnaire

A typological questionnaire will be drafted by the four project leaders, and filled in by all members of the consortium. Its development will need extensive preliminary checking on data through exchange between the PIs and with participants and partners.

The primary unit of observation in the questionnaire will be individual *constructions* in individual languages. The semantic aspects of the questionnaire were outlined in 3.1.1.1, its morphosyntactic aspects in 3.1.1.2; to these, we can add a lexical section, introduced in 3.1.2 in the form of the verb lists in tables 1, 2. These parts will be developed into a questionnaire, and discussed with other participants of the project. Our previous experience with the Grammaticalization project (Bisang, Malchukov eds. 2020) has shown that typological questionnaires are best elaborated by incorporating feedback from the participants early on.

#### **Online database and statistical analysis**

The project's recruited positions (postdocs, PhD students) will contribute to creating an online database on VCPs, in close cooperation with our engineers; they will fill it with their own data, whether firsthand or secondhand. Once that database is setup and tested through, language experts (2.2.1) they will fill it with their own data.

That database will in turn be mined for typological generalizations and statistical analyses:

- In order to check how much the four types of complex predicates form "natural classes" (Question (A)), we will use *NeighborNet* to calculate a distance matrix showing the clustering of constructions (i)–(vii) (cf. 3.1.1.1), and of their morphosyntactic properties #1–7 (cf. 3.1.1.2).
- Questions (B) on a typologically informed taxonomy of L-verb and (C) on the independent confirmation of typological generalizations can start out from clusterings in *NeighborNet*, followed by other methods currently used by Bisang & Malchukov in their grammaticalization project (e.g. correlation analysis, hierarchical cluster analysis, random forest analysis) (see 2.2.1). The final decision on these methods can only be taken in the 3<sup>rd</sup> year on the basis of our data, in cooperation with the French postdoc.
- > Questions (**D**) and (**E**) on grammaticalization and lexicalization will be based on a list of G-verbs (grammaticalization) and of lexical domains, extracted from the questionnaire.
- Question (F) on areal vs. phylogenetic biases will be visualized by plotting the results from (D)–
   (E) onto WALS-style maps (Haspelmath *et al.* 2005; Dryer & Haspelmath 2013).

## 3.2.3 Deliverables

We will publish an **EDITED VOLUME**, including a position paper by the PIs: this will feature an overall analysis and discussion of the results, based on our database, as well as on the chapters by participants and partners (in analogy to Bisang & Malchukov 2020). In addition, there will be several theoretical chapters from a few participants and partners.

Our **DATABASE** will include data supplied by all members of the consortium. Every construction treated in the volume will be accompanied with specific examples, integrated into the overall framework of the questionnaire. The database will include VCPs extracted from the chapters, then enriched with examples, and annotated for the morphosyntactic properties listed above (e.g. contiguity, order, argument sharing, negation sharing); it will also feature a list of common grammaticalization and lexicalization patterns observed for VCPs.

The database will be published online, in Open access, as a contribution to the CLLD series (Cross-Linguistic Linked Data, *https://clld.org*). We will follow the recommendations of CLDF (Cross-Linguistic Data Formats, *https://cldf.clld.org*) for sustainability, interoperability and sharing of crosslinguistic data (Forkel *et al.* 2018). As for our precise database structure, it will be determined through consultation between Prof. Haspelmath and his CLDF team, and the IT engineers (French side). Given the amount of data to be incorporated, the help of research assistants is likely to be needed.

#### **3.2.4** Tasks and positions

- > **W. Bisang** (PI), in addition to his general function (3.2.1), will write a chapter on Sinitic, coauthor the position paper, prepare the questionnaire.
- A. Malchukov (coordinator, 50%) will write a chapter on Tungusic, coauthor the position paper, prepare the questionnaire, coordinate the database (together with a PhD and student assistants) and manage the editorial process of the volume. As shown by previous experience, close scientific coordination at all stages of the project is indispensable for the success of largescale typological projects. Administrative coordination/support will be provided by the respective host institutions.
- > **M. Vanhove** (PI) will coordinate the project too, interact with other linguists, and supervise the French PhD student (4.2.1.1); she will work closely with the Paris-based engineers, in coordina-

tion with Leipzig-based CLDF experts. She will contribute to the questionnaire and database for Beja (Cushitic), coauthor the position paper and write a chapter on Cushitic for the volume.

 A. François (co-PI), besides his involvement in the project as a whole (conception of questionnaire and database, coauthoring of position paper), will also supervise the postdoc to be hired (4.2.1.2). He will contribute to the questionnaire and database for four Oceanic languages and creole Bislama, and write a chapter on the languages of northern Vanuatu.

# 3.2.4.1 Positions (French team)

1 PhD student:	36 months. Based in LLACAN-CNRS (see 4.2.1.1)
1 Postdoc:	24 months. Based in LATTICE–ENS–CNRS (see 4.2.1.2)

# 3.2.4.2 Positions (German team)

1 Postdoc (50%): Andrej Malchukov (cf. above).

- 1 PhD (66%): N.N.: S/he will write a PhD thesis under the supervision of Bisang and Malchukov on complex predicates based on fieldwork in a Tungusic language with serial verb constructions (as in Sinitic) and converbs constructions (as in Altaic) due to contact with Chinese. As for fieldwork in China, Bisang (PI) is well-connected to China (Chair Professorship at Zhejiang University [cf. CV] plus several keynote presentations at the Chinese "International Symposium on Linguistic Typology"). A preliminary topic for a PhD thesis is *Complex predicates and complex constructions in (spoken) Sibe*, a Manchu language with intensive contact to Sinitic, showing CVBs *and* SVCs. The topic of the PhD research can be adapted, depending on the general pandemic situation either with more emphasis on descriptive research, or with a more areal-typological perspective, addressing the list of grammaticalization and lexicalization paths in Sibe as compared to Altaic and Sinitic languages. In addition the PhD student will also help managing/ curating the database (editing the Excel files, datasets for the database, etc.).
- 2 student assistants: help with copyediting of the edited volume, as well as entering the data and editing the database. Especially labor-intensive for the last 18 months.

name	expertise	questionnaire	chapter	others
Vanhove	Cushitic	1	$\checkmark$	PI, position paper
François	Oceanic (Melanesia)	$\checkmark$	$\checkmark$	Co-PI, position paper
Boyeldieu	Nilo-Saharan	$\checkmark$	$\checkmark$	
Fagard	Romance	$\checkmark$	$\checkmark$	
Fedden	Papuan	$\checkmark$	$\checkmark$	
Jacques	Tibeto-Burman	$\checkmark$	$\checkmark$	
Meyer	Ethio-Semitic	$\checkmark$	$\checkmark$	
Moyse-Faurie	Oceanic (Polynesia)	$\checkmark$	$\checkmark$	
Robert	Atlantic	$\checkmark$	$\checkmark$	
Simeone-Senelle	Semitic, Cushitic	$\checkmark$	$\checkmark$	
Schapper	Timor–Alor–Pantar	$\checkmark$	$\checkmark$	
Souag	Songhay	$\checkmark$	$\checkmark$	
Treis	Cushitic, Omotic	$\checkmark$	$\checkmark$	
Mélanie-Becquet	databases	conception		exploitation of results
Doan-Rabier	databases	programming		exploitation of results

## 3.2.4.3 Responsibilities of participants (French side)

name	expertise	questionnaire	chapter	others
Butt	Urdu/Hindi – LVCs		-	Chapter on LVCs
Creissels	African and Caucasian Languages, typology	$\checkmark$	_	Typological advice
Forker	Georgian, Bezhta (Caucasus)	1	1	
Güldemann	Bantu, Khoisan – African linguistics	$\checkmark$	1	
Haig	West-Iranian	1	1	
Haspelmath	Linguistic typology	-	-	advice on CLDF
Helmbrecht	Siouan (USA)	$\checkmark$	1	
Inman	Wakashan (Canada)	$\checkmark$	1	
McGregor	Nyulynyulan (Australia)	$\checkmark$	1	
Mithun	Mohawk (USA, Canada)	$\checkmark$	1	
Prévost	Medieval French, Grammaticali-zation, Lexicalization			advice on lexicalization
Skribnik	Mongolic	$\checkmark$	1	
Van Valin	General Linguistics, Lakhota	$\checkmark$		advice – cf. research question (C)
Vuillermet	Takanan language (Colombia)	1		

# 3.2.4.4 Responsibilities of partners (German side and French side)

# 3.2.5 Time schedule

s1	Preparation of the questionnaire; team-internal business meeting; general organization				BM	Online
s2	First conference: ≈30 participants present their research related to VCPs on individual languages (based on draft questionnaire). Based on feedback from participants, core team finalizes questionnaire after the conference.				Conference	Online
s3	Participants work on the (first) draft of their contributions, based on questionnaire. Core team works on first draft of position paper. Core team plans structure and organization of database. M18: Meeting with engineers for database [Fr] to plan for research questions (A), (D)—(F).	2 PhD	1 postdoctoral	1 postdoctoral	BM	Paris
s4	First drafts submitted; core team provides editorial feedback + organizes internal reviewing. Mid-term small workshop for core team +PhDs/postdocs. Contributors work on database contributions.	students	researcher (a	researcher (2	BM	Mainz
s5	Core team works on quantitative assessment of the database; French postdoc selects and starts running relevant methods of statistical analysis. Second conference: for ≈30 participants & partners. They are asked to submit a chapter before attending the conference. Core team writes position paper.		36 m)	24 m)	Conference	Paris
s6	The <i>Handbook of Complex predicates</i> is submitted. Work on the database is completed; the online database is made public.				BM	Mainz

Table 4 – Full time schedule of ComPLETE

- > BM = Business meeting, involving a smaller group typically, the four main researchers, with engineers and doc/postdoc.
- > Conference = the entire group of participants

TOTAL: 59,459 characters

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## **3.3.2** Previous publications on the project by the research team

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