

Turning Back to Again Using Parallel Texts

Structuring the Semantic Domain of Repetition and Restitution

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Abstract

This study investigates expressions akin to ‘again’, which inhabit the semantic domain of repetition and restitution, from a cross-linguistic perspective. Using massively parallel corpora as the primary source of data the aim of this study is to investigate whether the encoding of repetitive and restitutive meaning is a cross-linguistically valid difference and if there are any patterns in the language specific variation of the repetitive and restitutive domain. By using Multi-Dimensional Scaling and Partitioning Around Medoids to investigate how the expressions ‘third time’, ‘second time’, ‘again’, ‘back’ and ‘return’ make up the semantic space of the domain, it was determined that the domain in question forms a continuum of meanings. This scale, named the TURN-hierarchy, is comprised of repetitive expressions like ‘third time’ to the far left, ambiguous expressions like ‘again’ in the intermediate section and restitutive expressions such as ‘return, back’ to the far right. Furthermore, the results show that repetitive and restitutive meaning is encoded differently in a majority of the sample languages, and that there is asymmetry in the encoding of repetition and restitution where repetitive meaning is privileged. Thus, it is proposed that all languages have at least one exclusively repetitive expression.

Keywords

typology, semantics, repetition, restitution, semantic maps, Multi-Dimensional Scaling, parallel texts ...

Sammanfattning

Denna studie undersöker den semantiska domän som innefattar repetition och restitution. Med en parallell textkorpus som primärkälla ämnar studien undersöka om repetition och restitution är en tvärspråkligt relevant skillnad samt om det finns några mönster i variationen av de språkspecifika uttrycken. Genom att använda Multi-Dimensional Scaling och Partitioning Around Medoids för att undersöka hur uttrycken ‘tredje gången’, ‘andra gången’, ‘igen’, ‘tillbaka’ och ‘återvända’ utgör domänen i fråga fastställdes det att den utgör ett kontinuum av betydelser. Den här skalan, här döpt till the TURN-hierarchy, innehåller repetitiva uttryck som ‘tredje gången’ längst till vänster, ambigua uttryck som ‘igen’ i mitten och restitativa uttryck som ‘tillbaka, återvända’ längst till höger. Resultaten visar att repetition och restitution är en relevant skillnad i en majoritet av de undersökta språken men att repetition uttrycks i en större utsträckning. Därmed föreslås det att alla språk har minst ett enbart repetitivt uttryck.

Nyckelord

repetition, restitution, typologi, semantik, semantiska kartor, Multi-Dimensional Scaling, parallella texter ...

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Abbreviations

1	first person
2	second person
3	third person
COND	conditional
DEM	demonstrative
DET	determiner
FUT	future
INF	infinitive
IPFV	imperfective
LOC	locative
M	masculine
N_INIT	not initial
NEG	negation
OBJ	object
PART	participle
PL	plural
PNM	person name marker
PPFV	past perfective
PREP	preposition
PRS	present tense
PST	past tense
REFL	reflexive
REL	relative
REP	repetitive
RESTV	restitutive
SG	singular
SUBJ	subject

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Presentation conventions

Examples are given as found in the original source. Interlinear glossing is provided following the Leipzig Glossing Rules, which can be accessed at

<https://www.eva.mpg.de/lingua/resources/glossing-rules.php>

The ISO 639-3 code for each language is given in square brackets in all examples and tables to facilitate language identification, taken from Hammarström et al. (2020).

Semantic maps created using MDS (Multi-Dimensional Scaling) are provided for all languages in Appendix C. Due to limitations in the script, language names and expressions are written using the characters Aa-Zz only. Therefore the expressions listed in each figure is an approximation and do not contain any special characters or diacritics.

1 Introduction

Repetition is a basic human experience and part of our fundamental cognitive processes, and thus by extension, a fundamental part of language. Most, if not all, languages can express the repetition of an event or a situation by lexical, grammatical or syntactical means. A notion related to that of repetition is restitution, which describes the reinstatement of an earlier state of affairs. Repetition and restitution are encoded by a variety of expressions such as *second time*, *again* and *back*. In English, *second time* encodes repetition, *back* encodes restitution and *again* can encode both meanings. The ambiguity of AGAIN has been discussed extensively in the formal semantic literature, but has received little attention outside the field of semantics (von Stechow 1996; Kamp and Rossdeutscher 1994; Fabricius-Hansen 2001; Jäger and Blutner 2003). As can be seen in example (1) below, English *again* can be repetitive, restitutive or ambiguous. In (1a) *again* has a repetitive meaning and is describing the repetition of the event of knocking. In (1b) *again* has a restitutive meaning, and describes the restitution of an earlier state, in this case that of the window being closed. *Again* can also be ambiguous, as in (1c). In this case it is possible to interpret *again* as meaning that the event of recovering was repeated or that the state of being healthy was restituted.

- (1) Example of repetitive and restitutive *again* in English (adapted from Wälchli (2006: 75)).
- a. Sarah knocked on the door *again*.
 - b. The wind blew open the window, so Leila closed it *again*.
 - c. After three months he recovered *again*.

With AGAIN as a starting point, this study investigates the semantic domain of repetition and restitution from a cross-linguistic perspective. Since neither AGAIN nor repetition or restitution are considered core grammatical categories, corpus data from parallel texts are used in tandem with data from grammars to describe the domain in question. By using corpus data I aim to capture a larger part of the domain, as well as the language internal variation present in the sample.

1.1 Aims and research questions

The aim of this study is twofold. First, I aim at investigating whether the encoding of repetitive and restitutive meaning differs cross-linguistically and, thus, to contribute to the ongoing theoretical discussion on the different readings of AGAIN and related expressions. Second, using repetitive and restitutive AGAIN as a starting point, I further aim to describe the semantic domain of repetition and restitution from a typological perspective. The research questions are as follows:

1. Are repetition and restitution encoded differently in the languages of the world?
2. Are there any patterns in the language specific variation of the encoding of the repetitive and restitutive domain?

2 Background

This section is organized as follows. Section 2.1 provides an overview of the semantics of AGAIN and some related expressions. Section 2.2 gives an account of semantic change and the different grammaticalization paths of AGAIN and RETURN. Section 2.3 introduces semantic maps of *wieder* ‘again’ and *terug* ‘back’ and other related studies.

2.1 Towards a definition of the repetitive and restitutive domain

The semantic domain of interest to the present study is inhabited by expressions akin to *second time*, *again*, *back* and *re-* in English. They are used in similar contexts, albeit with small differences in meaning, and can therefore be said to occupy the same semantic space. Semantic space refers to a model of natural language that represents meaning visually and captures both ambiguity and language internal variation (Lund and Burgess 1996).

As can be seen in example (2), inspired by Zwarts (2018: 212), the expression *second time* in (2a) presupposes that Bob has driven once before. Similarly, *again* in example (2b) presupposes that Bob has driven his car at an earlier point in time and conveys that he is now repeating that action. The difference between *again* and *second time* is that the latter specifies the number of times the event has happened before. *Again* is therefore less specific. English *back* has a different set of presuppositions, as can be seen in (2c). There is a presupposition that Bob was somewhere at an earlier point in time and is now driving back to where he came from. English *return* has a meaning very close to *back*, as can be seen in (2d), but is expressed by a prefix *re-* and a root. The difference between *back*, *return*, *re-* and *again*, *a second time*, is that *back* and *return* refer to the reinstatement of Bob’s original location, and not the repetition of him going there. *Back* and *return* therefore encode restitutive meaning, whereas *again* and *second time* encode repetitive meaning.

(2) Example of *second time*, *again*, *back* and *re-* in English

- a. Bob drove a *second time*.
- b. Bob drove *again*.
- c. Bob drove *back*.
- d. Bob *returned* by car.

In formal semantics AGAIN is well known for being a presupposition trigger (Kamp and Rossdeutscher 1994: 188). As can be seen in example (3) below, *again* in (3b) enables the presupposition that Fritz has previously lived in Stuttgart, as opposed to (3a) which allows for no such presupposition.

(3) Example of *again* as a presupposition trigger (Kamp and Rossdeutscher 1994: 190) (modified)

- a. When I first met Fritz, he had just moved to Paris. Now he is living in Stuttgart.
- b. When I first met Fritz, he had just moved to Paris. Now he is living in Stuttgart *again*.

AGAIN always triggers a presupposition, but the kind of presupposition it triggers can vary. English *again* (and German *wieder*) famously have both a repetitive and a restitutive reading. In (4a), *again* has a repetitive meaning and therefore refers to the repetition of the event of ringing the bell. In (4b) there is no such repetition because the action of closing the window could be the first of its kind. Instead, it is the state of the window being closed that is restituted.

(4) Example of repetitive *again* (Kamp and Rossdeutscher 1994: 190-191) (modified)

- a. Now Fritz has rung the bell *again*.
- b. A gust of wind had blown the window open. Because of the draft Maria closed it *again*.

As for presuppositions, repetitive *again* in (4a) presupposes an earlier event of the same type that is then repeated. Restitutive *again*, on the other hand, generates the presupposition that prior to the event described in the sentence (to close), there was another event of the opposite process (to open). Thus, restitutive *again* conveys that the opposite process has now been undone and the original state restituted, in this case the window being closed (Kamp and Rossdeutscher 1994: 194-195). A restitutive reading is, however, only available with certain types of predicates. The predicates which allow for a restitutive reading have two things in common: they involve change in some way and have a result state. Another term for these types of predicates is change-of-state predicates (Fabricius-Hansen 2001: 103). Activities such as ‘to run’ or ‘to swim’ do not allow a restitutive reading, but certain accomplishments and achievements such as ‘to open’ or ‘to fall’ do since they have a result state and involve change. Irreversible accomplishments and achievements, such as ‘to break’, lack the changeability aspect of change-of-states predicate and thus only allows for a repetitive reading.

There are also cases where the meaning of *again* is ambiguous. In example (5), *again* can be interpreted as repetitive, thus meaning that the man had been sick and recovered at an earlier point in time, then fallen ill and recovered again. In this interpretation the action of recovering is repeated. If *again* is interpreted as restitutive, it is the state of the man being healthy that is reinstated after a time of illness. There is a presupposed opposite process of becoming sick that is then reversed when the man becomes healthy and thus the original state of health is restituted.

(5) Example of ambiguous *again* (Kamp and Rossdeutscher 1994: 191) (modified)

After three weeks he recovered again.

Cases such as example (5) above have been discussed extensively in the formal semantic literature where there are two main analysis as to why this ambiguity arises: a structural analysis where the meaning of AGAIN is seen as constant (von Stechow 1996; Beck 2006; Gründer 2011), and an analysis which argues that the meaning of AGAIN is ambiguous Fabricius-Hansen (2001); Jäger and Blutner (2003). A general account of the two main theories is given below, represented by the works of von Stechow (1996) and Fabricius-Hansen (2001).

The structural analysis of (von Stechow 1996: 4) is decompositional. All predicates that allow a restitutive reading are thought of as involving causation, as in ‘to open’ [CAUSE TO] (BECOME(OPEN)). The main point of von Stechow’s analysis is that he refutes the idea that German *wieder* ‘again’ is ambiguous, and instead assumes that *wieder* is lexically always repetitive. What is repeated varies depending on the syntactical structure of the sentence: the whole event or its resulting state. If the whole event is repeated, the reading is repetitive and if the state is repeated the reading is restitutive. According to von Stechow (1996), the cause of variation is the syntactical scope of *wieder*. If *wieder* follows the subject or object it has narrow scope over CAUSE or the resulting state and generates a restitutive reading, as in example (6a). If *wieder* occurs before the subject or object, it generates a repetitive reading, as in (6b). Since a sentence, and wider context, provides the necessary information to decide the meaning of *wieder*, von Stechow’s claims can only account for the lexeme *wieder*, and not for the whole sentence. Sentences with irreversible events such as ‘to break’, mentioned above, are not explained by von Stechow’s theory. A sentence such as ‘He broke the window again’ is inherently repetitive because of its predicate. A window can not revert back to being broken, since it is whole from the start.

(6) Example of repetitive and restitutive *wieder* (von Stechow 1996: 4) (my translation, modified)

- a. (Als) Ali Baba Sesam wieder öffnete (restitutive)
 when SUBJ OBJ again opened

‘(When) Ali Baba opened Sesame again.’

- b. (Als) Ali Baba wieder Sesam öffnete (repetitive)
 when SUBJ again OBJ opened

‘(When) Ali Baba opened Sesame again.’

Conversely, the ambiguity theory represented by Fabricius-Hansen (2001) assumes that *wieder* is polysemous with regards to the repetitive and restitutive readings. External factors, such as syntactical position and the type of predicate that *wieder* modifies, influence which meaning of *wieder* is interpreted but both are inherent to the adverb. The restitutive reading is only available with change-of-state predicates, such as ‘open’, and may be blocked if the adverb occurs in V2 position or if it precedes the subject or object (Fabricius-Hansen 2001: 102).

In short, a commonality between the two theories is that external factors such as word order, scope and prosody do affect the interpretation of *wieder*. The point of divergence is whether the restitutive reading is a product of certain contexts (von Stechow 1996), or whether it is an inherent part of the meaning of *wieder* (Fabricius-Hansen 2001). Note that these theories only account for German where there seems to be a syntactic difference related to the difference in meaning. Regardless of why *wieder* is ambiguous, it is clear that it can encode both repetitive and restitutive meaning, which in turn suggests that the two meanings are more similar than they at first seem.

Related expressions which share a restitutive reading with AGAIN IS BACK (Zwarts 2018: 212). This is especially apparent in Dutch where *terug* ‘back’ is used in a restitutive sense where English would use *again* or *re-*. In example (7a), the door goes back to a state of being open, and the English translation uses *again* whereas the Dutch example uses *terug*. In (7b), English uses *again* and *re-* to describe the restoration of a location to its original state, while the Dutch, again, uses *terug*.

(7) Example of restitutive AGAIN in Dutch (Zwarts 2018: 216)

- a. *De deur gaat terug open.*
the door goes terug open
‘The door opens again.’
- b. *Alles moet terug opgebouwd worden in Afghanistan.*
everything must terug up-built be in Afghanistan
‘Everything has to be restored again in Afghanistan.’

In addition to restitution, English *back* and *re-* also encode responsive and reditive readings, illustrated in (8) below. Example (8a) encodes a responsive reading, which means that someone is acting in response to an earlier action, commonly found with verbs of saying. In this case it refers to the counter-directionality of responding to someone, just like restitutive AGAIN is counterdirectional. English *back* and *re-* also encode a reditive reading, as can be seen in (8b), which indicates movement towards an earlier position. Here, *back* refers to returning to a place where you were at an earlier point in time, thus restituting your original location. Redition can therefore be seen as a type of restitution. Restitution is more general in that it signifies reverting to any previous state, such as a location, and reditive meaning can therefore be seen as a sub-type of restitutive meaning.

English *re-* is not only restitutive, however. Like *again* it can encode both repetitive and restitutive meaning depending on what verb it is lexicalized with. Compare *to re-store* and *to re-invent*, for example. In *to re-store*, *re-* conveys that an original state is reinstated and in *to re-invent* it signifies the act of inventing something for a second time.

(8) Examples of *back* and *re* in English

- a. Bob wrote *back* to Viv.
- b. Bob drove *back*.
- c. Bob *responded* to Viv.
- d. Bob *returned* by car.

AGAIN can further be used in a continuative sense. This reading is similar to *say again* in English, which can have a continuative meaning, i.e. ‘continue saying, resume saying’, in addition to a repetitive

meaning (Wälchli 2006: 76). It might be difficult to disambiguate these two readings. If pauses during speech are taken into account the reading can be interpreted to be repetitive, and if the pauses are not considered important, the reading will be continuative. It is evident, however, that some languages use AGAIN in a continuative sense. In Lahu, *k'aw* 'again' can be used together with *k'ai* 'go' to express 'go on, pass' (Wälchli 2006: 76). The connection between repetition and continuation is not as straightforward as between restitution and rediction, but is nonetheless worth considering.

- (9) Example of continuative AGAIN in Lahu [lhu] (Sino-Tibetan) (Wälchli 2006: 76)

Ye_su aw_g'uśuh_ a ci_ k'aw_ k'ai hta_
 Jesus forwards a little again go when

'And when he had gone a little further thence...'

It is evident that the domain in question is complex with various related senses and expressions which are used differently in different languages. On the one hand, there is a repetitive part of the domain with ties to notions such as iteration and continuation. On the other hand, there is a restitutive part of the domain closer to meanings such as RETURN and BACK. Repetition and restitution, and the other related senses, may or may not be expressed by the same construction in a given language. Expressions such as English *second time*, mentioned in the beginning of the section, are not ambiguous and only encode repetitive meaning, while AGAIN even though it is semantically similar can express both repetition and restitution.

2.1.1 Working definitions

This section contains the working definitions of the terminology henceforth used to describe the repetitive and restitutive domain.

Repetitive expressions are expressions which refer to the repetition of a state of affairs, such as 'Leila knocked on the door again.'

Repetitive+ refers to an expressions with repetitive meaning with non-identical participants, such as 'Leila opened the window. One hour later, Viv opened the window again.' The repeated action is identical but the participant repeating the action is different.

Transpositive is another kind of repetitive expression which refers to an event of the type: X does with Y what Y does with Z. The action and one of the participants are repeated.

Additive expressions have the meaning of 'also, too' and share similar presuppositions with repetitive expressions. Compare 'He came again' and 'He also came' which both convey repetition of a kind. In English, 'again' refers to the repetition of the event of arriving somewhere, and 'also' refers to the repetition of something or someone arriving

Continuative repetitive expressions are expressions which have a continuative meaning, such as *say again* in English which can mean 'continue saying'.

Reconstructive refers to a meaning similar to 're-build' or 're-make', where something is constructed again.

Restitutive expressions refer to the restitution of an earlier state, such as 'Leila closed the window again' where the window goes back to a state of being closed.

Reditive meaning indicates movement towards an earlier position, as in 'Bob drove back'. Rediction can therefore be seen as a type of restitution, since returning to an earlier position can be likened to returning to an earlier state.

Rearward refers to the notion of moving back in space, as in 'shrink back' or 'recoil'. The difference between rearward and reditive meaning is that rediction refers to moving towards an earlier position, whereas rearward only refers to the act of moving backwards in space with no end position.

Retrograde refers to a process that has the opposite direction compared to the default, such as 'Can you count backward from 100 to 1?'. It does not refer to movement per se, but rather a general direction which is opposite to the default.

Responsive expressions convey that someone is acting in response to another action, as in ‘Bob wrote back to Viv’ where Bob responds to what Viv wrote to him previously.

Contrastive refers to expressions which puts one thing in contrast to another, as in ‘One skirt is too long, the other again too short’.

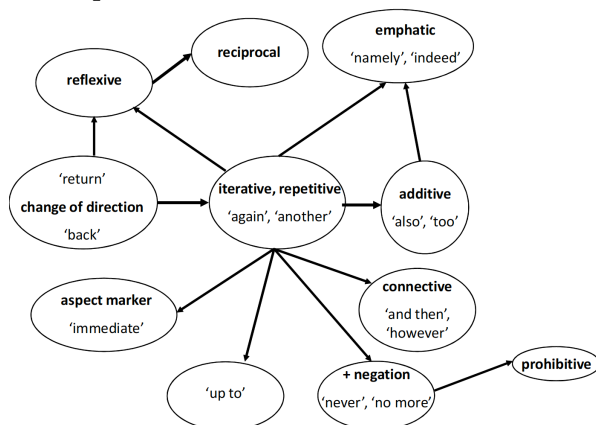
2.2 Grammaticalization paths of repetitive and restitutive expressions

The previous section described the domain of repetition and restitution which comprises a variety of senses with related uses, encoded by different expressions. The proximity in meaning of these different senses, such as repetitive and restitutive, can be explained by the diachronic development of *AGAIN* or *RETURN*, which is explored in this section. Expressions for *AGAIN* are, however, a prolific source of grammaticalization and can thus not be covered in their entirety within the scope of this thesis (Lichtenberk 1991; Allan 1995; Heine and Kuteva 2002). Instead, the focus of this section will be a few selected paths.

Broadly speaking, grammaticalization is a diachronic process where grammatical morphemes develop from lexical morphemes. In simplified terms, frequent usage of a lexical item leads to loss of referential meaning and phonological content. This enables use in a higher number of contexts and eventually causes dependence on other elements in the sentence and, ultimately, fusion with said elements (Bybee et al. 1994: 4-8) (see also Givón (1971) and Heine and Narrog (2012)).

Moyse-Faurie (2012) studies *AGAIN* and *RETURN* as sources of grammaticalization in Oceanic languages and finds ten common grammaticalization paths, as can be seen in figure 1 below. The focus of this section will be on the upper half of the map, i.e. repetitive, change of direction, reflexive, reciprocal, emphatic and additive. Expressions meaning *RETURN* or *BACK* often develop into repetitives in Oceanic languages. Repetitive markers can then develop into additive markers, meaning ‘also, too’. Repetition and addition are closely related in meaning, since repetition does not necessarily require the event which is repeated to be equal to the one before. The event that is repeated can be similar in characteristics, but not the same, which leads to the additive reading (Fabricius-Hansen 2001). A difference is that an additive marker allows for simultaneous events whereas *AGAIN* is sequential. In Oceanic languages, repetitives or *RETURN* and *BACK* also develop into reflexives and later into reciprocal markers. According to Moyse-Faurie (2012: 243), this development is common because the spatial notion of returning or moving backwards has its direction in common with the metaphorical direction of a reflexive marker. Repetitives can also develop into emphatic markers, as can additives.

Figure 1: Grammaticalization paths of *AGAIN* and *RETURN* in Oceanic (Moyse-Faurie 2012: 252)



In addition, Moyse-Faurie reports that *AGAIN* can have a continuative function outside of Oceanic languages, such as Indonesian *lagi* ‘again, still’. This is also attested in French *encore* ‘again, still, also’ and Mandarin Chinese *hái* ‘still, again, also, same’ (Moyse-Faurie 2012: 249). Adjacently, there is a possible semantic development from ‘new, first’ to *AGAIN*, which might seem far fetched at first glance.

It is possible that there is a connection between repetition and notions such as ‘reconsider, take a new look’, since doing something again could be seen as doing something as if it was the first time (Moyse-Faurie 2012: 249). This can also be attested for a number of languages such as Hawaiian *hou* which means ‘new, fresh, recent’ and ‘again, more, re-’, French *de nouveau* ‘again’ and Swedish *på nytt* ‘again, a new’, to name a few. The grammaticalization paths and semantic development of AGAIN and RETURN in Oceanic languages illustrate the many related notions which exist in the domain. The path from restitutive RETURN to repetitive AGAIN to other functions such as additive and continuative highlight the fact that these expressions are semantically very similar.

Semantic change is the process by which the meaning of a lexical item changes. Semantic change does not necessarily affect the surface level structure of an item, but the underlying meaning and connotations. Rosemeyer (2016) investigates the historical development, or semantic change, of RETURN + INFINITIVE constructions in Spanish, Catalan and Italian. Rosemeyer hypothesises, based on the work of Fabricius-Hansen (2001), that a repetitive reading of these constructions developed from a restitutive reading. As can be seen in example (10), this type of construction in Romance languages is equivalent to English *again*. The same construction can also have both a restitutive and a repetitive reading, as can be seen in examples (11) and (12).

- (10) Example of RETURN + INFINITIVE in Old Italian (Rosemeyer 2016: 236)

lo torna-sse a vedere un’ = altra volta
 him return-PST.IPVF.3SG to see one = other time

‘He saw him again another time.’

- (11) Example of a restitutive RETURN + INFINITIVE construction in Italian (Rosemeyer 2016: 240)

non vogl-io tornare a vivere in modo normale
 not want-PRS.1SG return to live in way normal

‘I do not want to again live a normal life.’

- (12) Example of a repetitive RETURN + INFINITIVE construction in Italian (Rosemeyer 2016: 239)

e di campionato si torn-erà a parlare sabato
 and about championship REFL return-FUT.3SG to speak saturday

‘And the championship will be discussed again next Saturday.’

A restitutive reading of RETURN implies the repetition of an event, i.e. the action of returning (or moving backwards, literally or metaphorically) is repeated when the state of being somewhere is restituted. This relationship is unidirectional since repetition does not imply restitution, which in turn strengthens the hypothesis that RETURN + INFINITIVE constructions in Romance languages developed a repetitive meaning from the original restitutive meaning. Rosemeyer (2016) concludes that the development in example 13 holds for Spanish and Catalan, and partly for Italian.

- (13) Semantic change in RETURN + INFINITIVE constructions in Romance (Rosemeyer 2016: 243)

Change of location > Restitution > Repetition

Rosemeyer’s findings are in accordance with Moyse-Faurie (2012), Stoyanova (2013) and Heine and Kuteva (2002), who all suggest RETURN as a source for repetitives. The new results add an important intermediate step to the process that is semantic change. From a verb which refers to a change of location, such as RETURN, to a meaning which refers to returning to a state, and then to general repetition (Rosemeyer 2016: 243). This is not to say that the many closely related expressions and meanings in the repetitive and restitutive domain can be explained solely by this particular path of diachronic development, since languages such as German and English have AGAIN expressions with both repetitive and

restitutive meaning, but neither have developed from RETURN. In fact, both developed from expressions meaning *ongegn* ‘against’ (Old English) or *wider* ‘against, contrary’ (Fabricius-Hansen 2001: 101). Both diachronic development and the fact that the different meanings within the domain are semantically close are necessary to explain the variation found in repetitive and restitutive expressions.

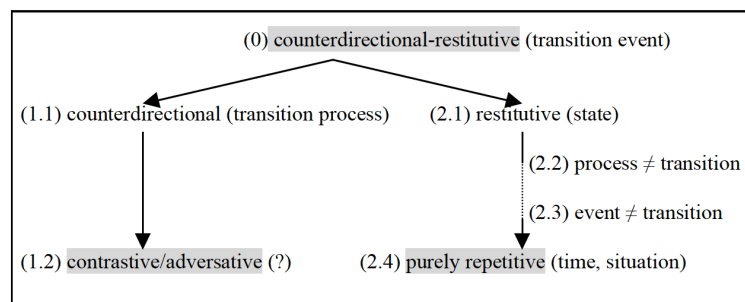
2.3 Semantic maps of repetitive and restitutive expressions

The domain under investigation is often illustrated with semantic maps. A semantic map is an illustration which shows the polysemy of an expression by connecting the different meanings with nodes. Senses spatially close together on the map mean that they are close in meaning (Haspelmath 2003: 217). As will later become apparent, a semantic map of an expression often resembles the diachronic development of the same item.

The semantic map provided in figure 2, while tentative, accounts for the different senses of *wieder* (Fabricius-Hansen 2001: 122). Three of the senses presented in figure 2 are restitutive: (0), (1.1) and (2.1) and two are repetitive (2.3) and (2.4). In addition to restitutive and repetitive, Fabricius-Hansen includes a contrastive (1.2) and continuative (2.2) sense for *wieder*. An example of each sense is provided in example 14.

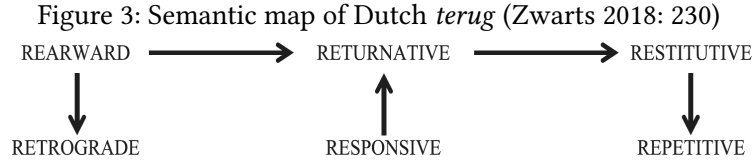
- (14) Examples of the different senses of German *wieder* adapted to English (Fabricius-Hansen 2001: 122)
- a. (0) The door was soon opened again.
 - b. (1.1) The prices are rising again.
 - c. (1.2) One skirt is too long, the other again too short.
 - d. (2.1) Arnim is at home again.
 - e. (2.2) Now Arnim is writing again.
 - f. (2.3) The little one has coughed again.
 - g. (2.4) Yesterday a participant left again.

Figure 2: Semantic map of German *wieder* (Fabricius-Hansen 2001: 122)



All readings of Dutch *terug* can be found in figure 3, most of which were explained in section 2.1. The rearward sense of *terug* refers to the notion of moving back in space, as in ‘shrink back’ or ‘recoil’. The retrograde sense is related, as it refers to a process that has the opposite direction compared to the default, such as ‘Can you count backward from 100 to 1?’ (Zwarts 2018: 213-214). The relations illustrated in figure 3 are similar to the diachronic development of AGAIN and RETURN (cf. figure 1). Dutch *terug* seems to be mainly associated with the restitutive or reditive part of the domain but has also procured a repetitive reading.

As mentioned in section 2.1, the domain of repetition and restitution, which includes expressions like *second time*, *again*, *back* and *return*, is semantically complex with many different readings. Stojnova



(2013) studies what she calls refactives, markers with a wide range of meanings such as repetition, returning to an initial state, movement in the opposite direction, and actions aimed at improving the result of a similar previous action committed in response to another action. She finds that the refactive, or the repetitive and restitutive, domain tends to be divided in two different ways cross-linguistically, as illustrated in table 1. First, there are senses of the repetitive and restitutive domain that are central and senses that are peripheral. The central readings, which are more common and more typologically stable, are restitutive, reditive and repetitive. More peripheral, but still relevant, are readings such as additive ‘also, too’, repetitive expressions with non-identical participants (REP+), responsive, reconstructive ‘re-build, re-make’, continuative and transpositive (X does with Y what Y does with Z) (Stoynova 2013: 79). Second, Stoynova (2013) finds a cross-linguistic tendency to divide the semantic space into two parts with regards to semantics. Meanings such as RETURN, reditive, restitutive and responsive belongs to one part of the domain, and meanings more akin to repetitive, continuative and reconstructive belong to the other. It is common for an expression in either part of the domain to have more than one reading (Stoynova 2013: 80). As can be seen in table 1, the repetitive part of the domain has a much larger periphery than the restitutive part. The larger semantic variation in the repetitive periphery may suggest that there is more variation in repetitive expressions.

Table 1: The structure of the repetitive and restitutive domain (Stoynova 2013: 79-80)

Central	Peripheral
RESTITUTIVE	RESPONSIVE
REDITIVE	
REPETITIVE	ADDITIVE
	REPETITIVE+
	REPETITIVE.CONTINUATIVE
	RECONSTRUCTIVE
	TRANSPOSITIVE

German *wieder* and Dutch *terug* differ on a number of aspects compared to Stoynova’s typological findings. German *wieder* includes two of the three central notions of the domain as found by Stoynova (2013). It also includes a continuative notion which is a part of the repetitive periphery, as well as a contrastive sense which is not included in Stoynova’s typology. Likewise, Stoynova mentions that German *wieder* has a responsive reading which Fabricius-Hansen does not recognize. It is likely that both authors have focused on different parts of the domain, and their respective views should therefore be seen as complementary rather than contradictory. They account for different, but mostly overlapping, parts of the same domain.

Dutch *terug* includes all central notions in the typology of Stoynova (2013): reditive, restitutive and repetitive. In addition, *terug* can express a rearward and retrograde reading which are not accounted for by Stoynova’s typology. None of the repetitive peripheral expressions are expressed by *terug*, which further cements its connection to the reditive and restitutive part of the domain. It would therefore be

beneficial to add rearward and retrograde to the periphery in Stoynova's 2013 typology, for a complete semantic map.

Fabricius-Hansen (2001) claims that *wieder* is mainly restitutive and that repetition is not a central notion. Fabricius-Hansen (2001) studied the German source texts in the Oslo Multilingual Corpus and found that *wieder* was used in a restitutive sense 66 percent of the time and in a repetitive sense 34 percent of the time (Fabricius-Hansen 2001: 125). Thus, she claims that German *wieder* is mainly used in its restitutive sense, and that the repetitive reading is secondary. Her conclusion is, however, based on frequency alone, which might not be enough to determine which reading is primary or secondary.

The same conclusions can be drawn when comparing *terug* to German *wieder*. While Fabricius-Hansen (2001) claims *wieder* to be mainly restitutive, it does not have the same connections to notions often associated with BACK, such as reditive or responsive, that *terug* has. This part of the German domain is probably occupied by the related *zurück* 'back'. It is evident when looking closely at related languages such as Dutch and German, that genealogical affiliation does not lead to expressions that are semantically equal. Instead, the related expressions such as *terug* and *zurück* share the senses related to the reditive part of the domain, and *terug* has acquired an additional repetitive meaning, while *wieder* covers that semantic space in German. These different senses and expressions are related both diachronically and semantically, which leads to a domain rich in variation.

Table 2 and figure 4 shows the structure of the repetitive and restitutive domain, based on the works of Stoynova (2013), Zwarts (2018) and Fabricius-Hansen (2001). The table and the semantic map integrates all repetitive and restitutive notions discussed throughout this section. Restitutive and reditive meaning are central notions in Stoynova's (2013) typology (see table 1). As earlier mentioned, the term reditive refers to motion towards an earlier position, a meaning which is more specific than reinstating an earlier state, such as a location or position. Redition is therefore a type of restitution and is categorized as an intermediate category in table 2.

The related notions rearward, retrograde and contrastive have been added from the works Fabricius-Hansen (2001) and Zwarts (2018). Rearward and retrograde are semantically close to restitution and have therefore been added to the periphery in that part of the domain.

At first glance, contrastive meaning seems far removed from both repetition and restitution, and could maybe be more likened to the connective evolution of AGAIN described by (Moyse-Faurie 2012) (cf. figure 1). However, it can be argued to have a close connection to repetition. Contrast implies repetition since it describes two entities that can, partly, be characterized by the same properties. As in example 14, 'One skirt is too long, the other again too short' describes two skirts, the same article of clothing, which have different lengths. As mentioned in 2.2, repetition does not necessarily only involve the same situation twice, it also holds for similar situations or situations that share certain characteristics. In the case of the skirts, even though they have different lengths the same kind of garment is repeated. Repetition can therefore be likened to 'something similar and something different before' (Fabricius-Hansen 2001: 122).

As for the semantic map in figure 4, it contains the senses in table 2. Repetitive, restitutive and reditive are central and intermediate senses and therefore have a central position on the semantic map. The peripheral senses are connected by nodes to the central or intermediate sense they are semantically closest to. For example, rearward refers to moving backwards in space and is therefore connected to reditive which refers to moving to a previous location. Similarly, repetitive+ is connected to repetitive since it refers to repetition but with non-identical participants.

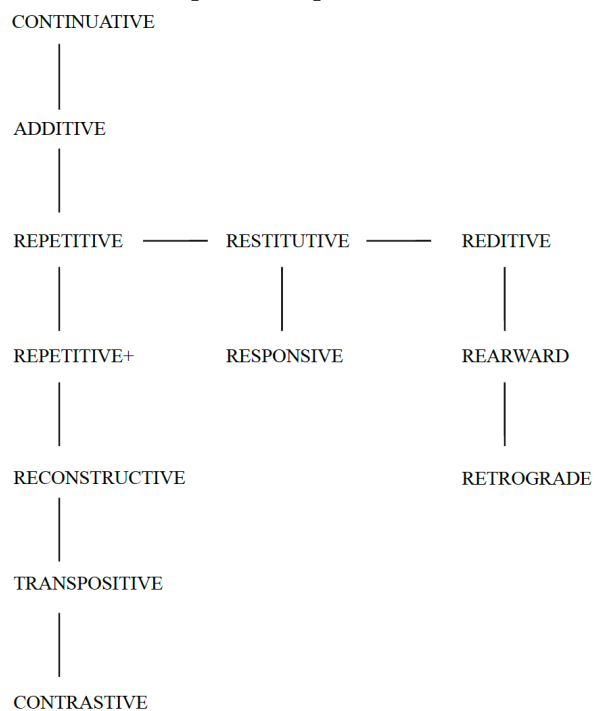
Compared to the semantic map of the repetitive and restitutive domain as a whole, the semantic maps of *wieder* and *terug* in figures 2 and 3 cover different sections of it. As earlier mentioned, *terug* has more in common with the restitutive part of the domain and therefore does not include any of the peripheral repetitive senses. The senses present in the semantic map of *wieder* are more fine grained than the senses in figure 4 and are therefore more difficult to compare. The senses 0, 1.1 and 2.1 are restitutive, but describe different type of events such as transition events, transition processes and states. 2.4 and 2.3 are repetitive and describe events and situations respectively. 1.2 is contrastive and 2.2 is continuative. The semantic map of *wieder* therefore does not cover many of the restitutive and

reditive senses presented in figure 4.

Table 2: The structure of the repetitive and restitutive domain

Central	Intermediate	Peripheral
RESTITUTIVE	REDITIVE	RESPONSIVE REARWARD RETROGRADE
REPETITIVE		ADDITIVE REPETITIVE+ CONTINUATIVE RECONSTRUCTIVE TRANSPOSITIVE CONTRASTIVE

Figure 4: Semantic map of the repetitive and restitutive domain



2.4 Summary

The domain of repetition and restitution is complex and comprises many different senses encoded by various expressions. Since the structure of the domain in question is not apparent from reading the literature, the aim of this section has been to provide a structure, as well as examples of how the various central and peripheral senses are encoded in a number of languages.

Stoynova (2013) divides the domain into central (repetitive, restitutive) senses and peripheral ones such as continuative, additive, responsive. I adopt the central and peripheral distinction made by Stoynova

(2013) and further extend the domain to encompass readings such as contrastive, rearward and retrograde (Fabricius-Hansen 2001; Zwarts 2018), as well as expressions such as *SECOND TIME* and *THIRD TIME*. I also add an intermediate sense: reditive, which is a central notion in Stoynova's typology. I argue that redition is a type of restitution since it refers to motion towards an earlier position, which, in turn, is a type of reinstatement of an earlier state (or location). The structure of the domain is presented in table 2.

As for encoding repetition and restitution, expressions meaning *AGAIN* can have both a repetitive and restitutive reading. In the repetitive sense, *AGAIN* refers to an event which is repeated. In the restitutive sense, *AGAIN* refers to the restitution of an earlier state of affairs. In some contexts the meaning can be ambiguous. Other meanings found in the domain are *SECOND TIME*, *BACK* and 're-' which are not ambiguous. *SECOND TIME* encodes repetition and *BACK* and 're-' encodes restitution. Expressions inhabiting the semantic domain in question can therefore be either ambiguous, like *AGAIN*, or unambiguous, like *BACK*.

The grammaticalization paths of *AGAIN* and *RETURN* show similarities with the semantic maps found in the literature, as well as the suggested structure of the repetitive and restitutive domain.

3 Method and Data

This section presents the methodology used to conduct the present study and includes the following subsections. In 3.1, the sample is presented and motivated. 3.2 describes the data set and data sources. In 3.3, the two methods used for data analysis are presented, namely Multi-Dimensional Scaling (MDS) and Partitioning.

3.1 The Sample

The present study pursues a typological approach since the domain of repetition and restitution has thus far been little explored in typology. Therefore, a stratified sample was constructed in order to capture as much cross-linguistic diversity as possible and to investigate how this diversity is constrained, assuming that genealogical and areal diversity correlates with structural diversity.

Different kinds of samples are better suited for answering different types of research questions. An in depth discussion of the benefits of different sampling techniques is outside the scope of this study, the focus of the following section will be on describing and motivating the sample of the present study (see also Croft (2002) Dryer (1989) Rijkhoff and Bakker (1998)).

The sample is stratified and contains 34 languages from six linguistic macro-areas as found by Dryer (1992). As can be seen in table 3, the sample includes eight languages from Africa, six from Eurasia, five from North America, five from South America, five from Australia-Papua New Guinea and five from Southeast Asia and Oceania. For the full sample, see Appendix A.

Table 3: The sample arranged according to six macro-areas

Area	No. of languages
Africa	8
Eurasia	6
North America	5
South America	5
Australia-Papua New Guinea	5
Southeast Asia & Oceania	5
Total:	34

Two constraints affected the sampling procedure. The data used in the study are parallel texts from the Bible corpus (Mayer and Cysouw 2014), which limits the number of available language to that of those present in the corpus (see 3.2). The particular research interests also put limitations on the sample. At its core, this study investigates language variation. Therefore, any language that was deemed to encode AGAIN with one expression only was discarded in favor of a sample with more of variety in the domain, i.e. two or more expressions for AGAIN. After these first two selections had been made, a stratified sample was constructed from the remaining available languages.

3.2 Data

The aim of this study is to investigate language internal variation with regards to a specific semantic domain. Therefore, the principal data source of choice is parallel texts. Data collected from grammars and dictionaries were also used as an alternative data source. There are a number of advantages for

using parallel texts over grammars for this particular field of interest. Reference grammars mainly describe core grammatical notions and are less focused on lexicon or derivation. Since neither AGAIN nor repetition or restitution are considered core grammatical notions and are instead often part of the lexicon or expressed by means of derivation, reference grammars are not particularly suitable as a main source of information. Furthermore, to capture more of the language internal variation, quantitative data such as data from a corpus, is well suited (Wälchli 2007; Stolz 2007).

The data used for this study is retrieved from a massively parallel text corpus commonly called the Bible corpus. The corpus consists of 1628 translations of the New Testament in 1336 languages, which are aligned at verse level (Mayer and Cysouw 2014). The starting point for the data-collection were contexts where the many English translations in the corpus contained the expressions *again*, *back*, *return*, *second time* and *third time*. This assures that the chosen contexts are all in a sense prototypical, but also introduces a bias towards English since contexts have been chosen where English explicitly encodes the domain.

In total, 94 contexts containing AGAIN, BACK, RETURN, SECOND TIME and THIRD TIME were included to capture as much of the repetitive and restitutive domain as possible. Examples of each expression in a typical context from the Bible corpus is given in (15) below. For all the English contexts, see Appendix D.

Expressions meaning BACK and RETURN were chosen as seed-expressions to further investigate the part of the domain with a restitutive, reditive, rearward, responsive and retrograde meaning. English *back* can encode a reditive, rearward, retrograde and responsive meaning depending on the verb with which it is used. In example (15b) below, *back* is reditive and is referring to the return of someone to an earlier location. RETURN is reditive since it refers to the action of going back to an earlier location, as can be seen in example (15c). Contexts containing expressions meaning SECOND TIME and THIRD TIME were chosen as seed-expressions to better understand the repetitive side of the domain. In specific, both expressions were included partly to investigate whether a language used an equivalent of English *time* as in *third time*, and partly because a third repetition of an event is likely to be exclusively repetitive. SECOND TIME may or may not be purely repetitive since it is very close in meaning to AGAIN and is used synonymously in many cases. The expression *another time* was also considered but does not occur in the Bible corpus and was therefore not included. AGAIN can have both a repetitive and a restitutive reading depending on the context, and was included in the study both to investigate its ambiguous nature and to capture repetitive and restitutive meaning.

The distribution of the different expressions can be seen in table 4. There are no occurrences of ‘fourth time’ or ‘fifth time’ in the corpus, thus higher ordinal numbers could not be investigated.

Table 4: The dataset

English expression	No. of contexts
again	33
back	26
return	18
second time	11
third time	6
Total:	94

- (15) Examples of *again*, *back*, *return*, *second time* and *third time* in the Lexham English Bible
- a. And **again** he denied it with an oath, “I do not know the man!” (40026072)
 - b. But neither did Herod, because he sent him **back** to us. And behold, nothing deserving death has been done by him. (42023015)
 - c. For the statement of the promise is this: “At this time I will **return** and Sarah will have a son.” (45009009)
 - d. And a **second time** they said, “Hallelujah!” And her smoke goes up forever and ever. (66019003)
 - e. This is the **third time** I am coming to you. By the testimony of two or three witnesses every word will be established. (47013001)

A list of word forms and morphs (continuous letter sequences) meaning AGAIN were automatically extracted from the corpus for each language and used to aid the data collection. This may have influenced my choice of what to consider when investigating what expressions were used in what contexts. To combat this bias, grammars and dictionaries were consulted to check the validity of the corpus data, and to collect any additional information on the expressions. In the vast majority of cases, the automatically extracted forms were found to be correct. If any additional forms were found, they were also considered when analysing the contexts. In the few cases where an automatically extracted form was not found in a reference grammar or dictionary, it was not discarded.

A database was then compiled containing an expression for each of the 94 contexts for each language, for a total of 3196 contexts (94 per language). If no expression meaning AGAIN, BACK, RETURN, SECOND TIME and THIRD TIME was found in a particular context it was marked as empty. In total, 783 contexts remained empty, or 24 percent. The average number of empty cells per language is 23 and the median is 21. There is no language in the sample without empty cells in the database. However, languages with more or better source material such as grammars and dictionaries, or languages known to the author, have less empty contexts. The potential reasons for this are many. It is possible that the context does not contain any of the investigated expressions and is worded in another way. This is the case for the empty contexts in French and German, of which there are eight and 12 respectively. It could also be the case that the context is not empty, and includes a rare expression that was missed. This is likely the case for low resource languages. It is also possible that a common expression was missed because it was not found in any of the available sources. This is likely the case for the Mayan language Tzeltal, which has one of the highest numbers of empty contexts, 43. No expression meaning BACK or RETURN could be found in the source material, thus these contexts are mostly empty.

3.3 Analysis

To measure similarity in meaning across the 34 languages in the sample, two methods were used: Multi-Dimensional Scaling (MDS) and Partitioning. The procedure is largely the same as in Wälchli (2019: 152-153) where it is described in detail. Below follows a general account of the main steps of the procedure.

A distance matrix is constructed to create probabilistic semantic maps with MDS and as a foundation for Partitioning. The matrix is constructed by comparing pairs of expressions in the data set using Hamming’s distance $1-s/t$. 1.0 represents maximum similarity and 0.0 maximum dissimilarity. The total number of equal markers across all pairs in the dataset is s and the total number of pairs is t .

A semantic map made with MDS has $n-1$ dimensions. The first two dimensions contain most of the information and were therefore investigated. A dot on the map represents a cross-linguistically aligned passage in the dataset, in this case a context containing an expression meaning AGAIN, BACK, RETURN, SECOND TIME or THIRD TIME. The closer the dots, the more semantically similar they are. The semantic maps were created in the statistics program R.

The distance matrix was also used for Partitioning Around Medoids, R: `pam()` in the R cluster library. Partitioning is a method of analysis where the contexts, or expressions, are divided into clusters based on the amount of identical encoding in all languages of the sample. The number of clusters which capture the most diversity in the sample was manually determined by comparing how the expressions were divided in two, three or four clusters and then sorted using a script in Python 2.7.

3.4 Summary

The present study uses a stratified sample containing 34 languages from six linguistic macro-areas to investigate a total of 94 contexts in the Bible corpus (Mayer and Cysouw 2014) containing the expressions AGAIN, BACK, RETURN, SECOND TIME and THIRD TIME. The expressions found for each language were compiled into a database which was then used to perform MDS and Partitioning Around Medoids.

4 Results

This chapter is structured as follows. Sections 4.1.1-4.1.3 give an introduction to the data, partitioning and probabilistic semantic maps as found in the study. Section 4.2 presents the encoding of repetition and restitution in the sample languages and a semantic map of the repetitive and restitutive domain, and section 4.3 outlines the structure of the semantic domain of repetition and restitution.

4.1 First steps

In this section, results which can not be accounted for in the presentation of the major findings are presented, and some key concepts are introduced.

4.1.1 Translational-equivalents

Repetitive and restitutive meaning are semantically close and can be encoded by the same expression, or expressions which are used interchangeably in the same context or sentence. Repetitive meaning encodes the repetition of a state of affairs and restitutive meaning encodes the restitution of an earlier state. The starting point of the data collection were the English expressions *again*, *second time*, *third time*, *return* and *back*, all of which are either repetitive, restitutive or both. Expressions meaning SECOND TIME and THIRD TIME are repetitive since they refer to the second or third repetition of an event. Expressions meaning RETURN and BACK encode restitution and rediction, the act of going back to an earlier place, which is a sub-type of restitutive meaning. Unlike the other expressions, AGAIN can encode both repetition and restitution depending on the surrounding elements in the sentence.

The expressions investigated in the study are presented below in a typical context from the Bible corpus. A context here refers to a sentence aligned passage from the Bible containing one of the expressions included in the investigation. French examples are used throughout the section because it is a language that figures prominently in the literature and has a variety of free and bound forms expressing the domain.

Example (16) shows examples of repetitive (16a) and restitutive (16b) AGAIN in French. The expressions *de nouveau* and *à nouveau* are used to express the different readings. Here, *nouveau* ‘new’ is used with the prepositions *de* ‘of, from’ and *à* ‘to, at, in’ and together mean ‘again, anew’. Repetitive and restitutive AGAIN are encoded with both of these expressions in French, with no discernable pattern.

(16) Example of AGAIN in French (43004013, 59005018¹)

- a. *Puis il pria de nouveau: le ciel donna de la pluie et la terre*
then he pray.PPFV.3SG again the sky give.PPFV.3SG of the rain and the earth
produisit son fruit.
produce.PPFV.3SG its fruit

‘And he prayed again , and the sky gave rain and the earth produced its fruit.’

- b. *Jésus lui répondit: "Quiconque boit de cette eau aura soif*
Jesus him answer.PPFV.3SG whoever drink.PRS.3SG of DEM water have.FUT.3SG thirst
à nouveau ;
again

‘Jesus answered and said to her, “Everyone who drinks of this water will be thirsty again.’

¹In typological work using the Bible corpus a single number is commonly used to refer to Bible verses. The first two digits stand for the book, the following three digits for the chapter and the final three digits for the verse.

Examples (17a) and (17b) show typical contexts containing BACK and RETURN in French. The examples contain lexicalizations consisting of the French prefix *re-* ‘again’, which is the source for English *re-* borrowed from Romance. Here, the prefix is lexicalized with the verbs *envoyer* ‘to send’ and *tourner* ‘to turn’ which derives the verbs *renvoyer* ‘to send back’ and *retourner* ‘to return’. The prefix *re-* is consistently used to translate expressions containing a verb and English *back* as well as *return*.

(17) Example of BACK and RETURN in French (42023015, 58011015)

- a. *ni Hérode non plus, car il nous l=a r-envoyé; c=est bien qu=il*
 not Herod either because he us it=has again-send.PART it=is good that=he
n=a rien fait qui mérite la mort.
 not=have nothing make.PART that deserve.PRS.3SG DET death.

‘But neither did Herod, because he sent him back to us. And behold, nothing deserving death has been done by him.’

- b. *Et s=ils avaient pensé à celle d=où ils étaient*
 and if=they had.3PL thought.PART prep the of=where they be.PST.IPFV.3PL
sortis, ils auraient eu le temps d=y retourner.
 come.out.PART, they have.COND.3PL had.PART the time of=LOC go.back.INF

‘And if they had been remembering that land from which they had gone out, they would have had opportunity to return.’

Example (18) contains the English expressions *second time* and *third time* which are translated with French *seconde fois* (18a), and *troisième fois* (18b). *Fois* is a feminine noun here occurring together with the ordinal numbers *seconde* and *troisième* which show feminine agreement.

(18) Example of SECOND TIME and THIRD TIME in French (44010015, 43021014)

- a. *De nouveau, une seconde fois, la voix lui parle: "Ce que Dieu a*
 Again one second time the voice him talk.PRS.3SG DEM REL God have.3SG
purifié, toi, ne le dis pas souillé."
 purify.PART you NEG that say.2SG NEG soil.PART

‘And the voice came again to him for the second time: “The things which God has made clean, you must not consider unclean!”’

- b. *Ce fut là la troisième fois que Jésus se manifesta aux*
 DEM be.PPFV.3SG DEM the third time that Jesus REFL manifest.PPFV.3SG PREP
disciple-s, une fois ressuscité d=entre les mort-s.
 disciple-PL one time resuscitate.PART PREP=among DET.PL dead-PL

‘This was now the third time Jesus was revealed to the disciples after he had been raised from the dead.’

The French expressions in examples (16)-(18) are the ones most commonly found in the dataset, although not the only ones. The restitutive and reditive expressions *return* and *back* are equivalent to the French prefix *re-*, which is lexicalized with various verbs. In contexts containing the repetitive expressions *SECOND TIME* and *third time* French uses expressions with similar structure to English, namely *seconde fois* and *troisième fois*. The translational equivalent of English *again* is most often *de nouveau* and *à nouveau*, in both the restitutive and repetitive contexts, but not always. This is explored further in the next section.

4.1.2 Partitioning and clusters

At first glance English and French seem similar in terms of translational equivalents, but a closer look at the data reveals that the French expressions are distributed over the contexts in the corpus in a different way compared to the English expressions, i.e. *again* is not always translated with *de nouveau*. To investigate this phenomenon, Partitioning Around Medoids (pam() in R), was used to divide the investigated expressions into clusters. In total, a number of three clusters were deemed to capture the most variation. Partitioning labels the clusters with numbers without providing any interpretation of how the cluster has to be interpreted semantically. The expressions found in the three clusters in English, French and German are illustrated in table 5. Note that the list of expressions in the table below is not exhaustive by any means, and its purpose is to illustrate how expressions can be divided between clusters. There is a number of expressions that occur a few times in the data that were excluded here for the sake of simplicity.

CLUSTER 1 contains expressions which have been used to translate English *again* and *second time*. Even though English *second time* and *third time* are morphosyntactically very similar, they are actually used in different contexts, whereas expressions for SECOND TIME and AGAIN often occur in the same contexts which is why the partitioning algorithm sorts expressions for SECOND TIME and AGAIN in the same cluster and expressions for THIRD TIME in a different cluster. In French *de nouveau* ‘again’, *seconde fois* ‘second time’ and lexicalizations containing *re-* ‘again’ are used for this purpose, among others, and are thus included in CLUSTER 1. In German, *wieder* ‘again’, *noch einmal* ‘once more’ and *zweites Mal* ‘second time’ have commonly been used in contexts where English uses *again* and *second time*. For contexts containing English *back* and *return*, French always uses the prefix *re-* ‘again’ and German uses mainly *zurück* ‘back’ and *wieder* ‘again’, which are found in CLUSTER 2. CLUSTER 3 is the cluster with least internal variation. It contains the English expression *third time*, French *troisième fois* ‘third time’ and German *dritte Mal* ‘third time’. Expressions equal to THIRD TIME should be thought of as equal to expressions meaning ‘more than second time’, but since expressions like ‘fourth time, fifth time’ do not occur in the corpus data, this is not apparent.

There is one expression in French and one in German which occur in more than one cluster, namely *re-* and *wieder*, marked in boldface in table 5. These expressions occur in both CLUSTER 1 and 2, which means that *re-* and *wieder* are translational equivalents of both *again*, *back* and *return*, depending on the context.

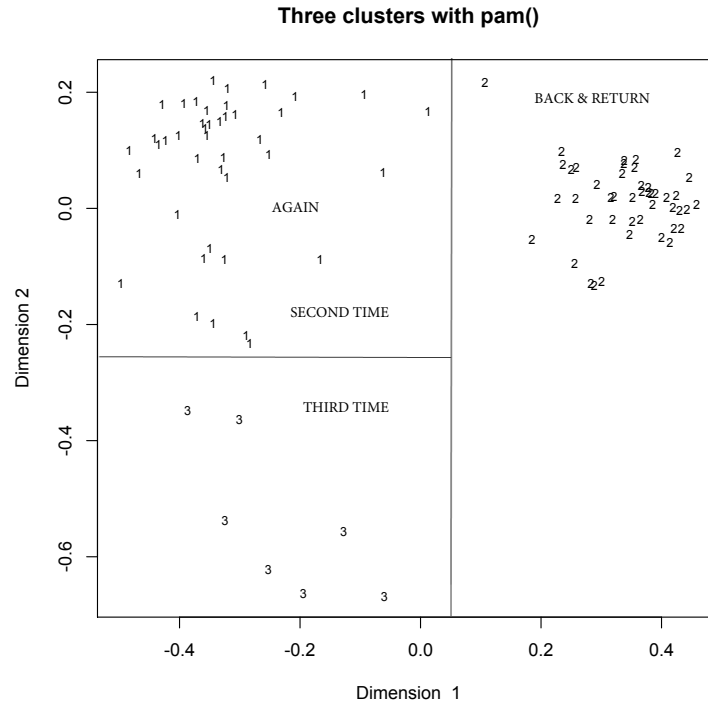
Table 5: Examples of expressions found in the three cluster, illustrated in tabular format

Language	CLUSTER 3	CLUSTER 1	CLUSTER 2
English	third time	again, second time	back, return
French	troisième fois [6]	de nouveau [19], seconde fois [8], re- [5]	re- [37]
German	dritte Mal [4]	wieder [20], noch einmal [10], zweites Mal [6]	zurück [28], wieder [4]

The three clusters are visualized as a probabilistic semantic map constructed with MDS, as seen in figure 5. The delimitations between clusters are added to better highlight the position of the clusters. Probabilistic semantic maps are further explained in section 4.1.3 below. First, let's take a closer look at how the clusters are represented on the map. Dimension 1, or the x-axis, is the most relevant for the present study. CLUSTER 1, denoted with number one on the map, is found in the top left corner of the map, i.e. on the negative side of dimension 1. CLUSTER 2, denoted with the number two, is found on the right side of the map, or the positive side of dimension 1. CLUSTER 3, denoted with the number three,

also occurs on the negative side of dimension 1 below CLUSTER 1. It is apparent from the positioning of the different clusters on the map that the clusters 1 and 3 which contain repetitive expressions meaning SECOND TIME, THIRD TIME and, partly, AGAIN are found on the negative (left) side of dimension 1, and that CLUSTER 2 which contains restitutive expressions occur on the positive (right) side of dimension 1. There is therefore a tendency for left side of the map to be repetitive and the right side to be restitutive.

Figure 5: Probabilistic semantic map of the three clusters



4.1.3 Probabilistic semantic maps

Probabilistic semantic maps were created for each language (see Appendix C). The configuration of contexts are the same in all semantic maps. The map for French is found in figure 7 below, next to the semantic map of the clusters introduced in the previous section. The shapes in different colors represent cross-linguistically aligned passages in the dataset, i.e. a context containing an expression meaning AGAIN, BACK, RETURN, SECOND TIME or THIRD TIME. The closer the dots, the more semantically similar they are. The legend gives the French expression equivalent to each shape and color. The number to the right of the expression is the total number of that expression found on the map.

The position of the dots on the map in figure 7 represent the same contexts at the same positions as the three clusters in figure 6, repeated for the sake of convenience. It is therefore possible to see in figure 7 in what cluster(s) the French expressions are found. The French prefix *re-* occurs in CLUSTER 2, on the positive (right) side of dimension 1 and extends into CLUSTER 1 on the opposite side. There is also another expression *arrière* 'back', which is only found in CLUSTER 2. On the negative side of the map, the expressions *de nouveau* 'again', *seconde fois* 'second time', *à nouveau* 'again, still' and *une fois* 'one time' occur in CLUSTER 1 on the negative side of the map, as does *troisième fois* 'third time' in CLUSTER 3. Note that *seconde fois* 'second time', which is part of CLUSTER 1, occurs in a section of CLUSTER 1 which is close to CLUSTER 3. CLUSTER 1 can therefore be interpreted as having 2 sections: one which contains SECOND TIME and one which contains AGAIN.

A probabilistic semantic map created with MDS often takes the shape of a half circle, or horseshoe. It can, however, be interpreted as a scale or a continuum going from one end of the horseshoe to the

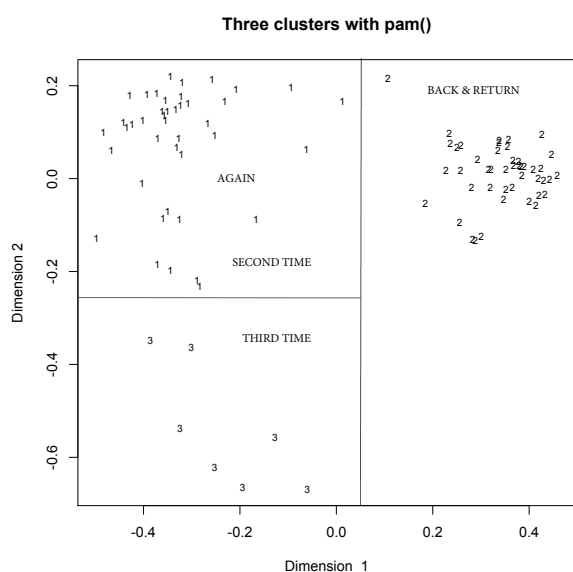


Figure 6: Semantic map of the clusters

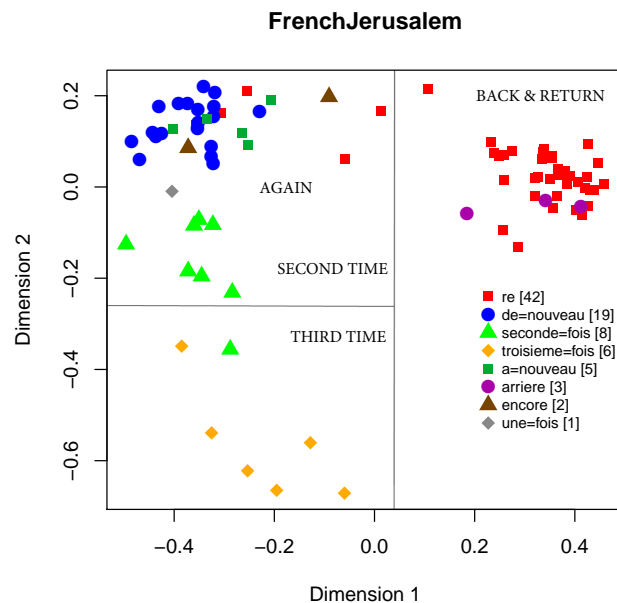


Figure 7: Semantic map of French [fra]

other. In French, this continuum starts with *troisième fois*, followed by *seconde fois*, and then a section which contains a variety of expressions, but mainly *de nouveau*, lastly followed by *re-*. This is further explored in section 4.3.

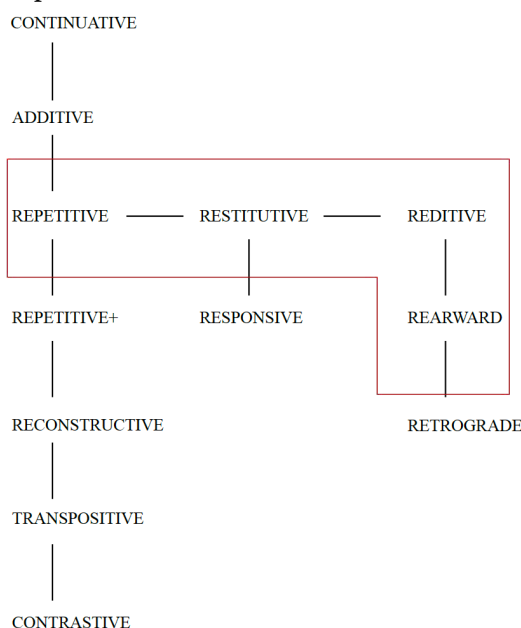
4.2 The encoding of repetition and restitution

In this section, a semantic map of the repetitive and restitutive domain and the ways in which the sample languages encode repetitive and restitutive meaning is presented.

Based on the semantics of the investigated contexts the semantic map in figure 8 was created. In total, four of the meanings shown in figure 4, which include all notions included in the literature on repetition and restitution, were also found in the dataset containing the English contexts: repetition, restitution, rediction and rearward, marked with red. Although the semantic map is based only on English data, it is in accordance with the semantic map based on the literature covering the whole domain. It also speaks in favour of the central and peripheral distinction made by Stojnova (2013), where central notions such as repetitive and restitutive are more common and peripheral notions are less common. Of these four meanings, only one notion which belongs to the peripheral part of the domain was found: rearward. To capture a larger part of the less common peripheral part of the domain, more data is needed.

It is difficult to decide whether restitutive AGAIN is expressed differently from repetitive AGAIN in the sample languages, since there are arguably too few examples of this reading to draw any conclusions. After a semantic analysis of the contexts containing English *again*, only six were deemed to have a restitutive reading. There is no separate cluster for restitutive AGAIN, and they are all found in CLUSTER 1 together with repetitive AGAIN. All six contexts are given in example (19) below. Examples (19a)-(19d) all contain states such as ‘be thirsty’ or ‘be inside’. These examples are clearly restitutive since *again* here refers to the restitution of that state. Examples (19e) and (19f) are more ambiguous. The predicate here is ‘take’ or ‘take possession of’, which can be interpreted both as repetitive, i.e. taking something one more time, or restitutive, i.e. the restitution of the state of possessing something.

Figure 8: Semantic map of the repetitive and restitutive domain based on the contexts in the Bible corpus



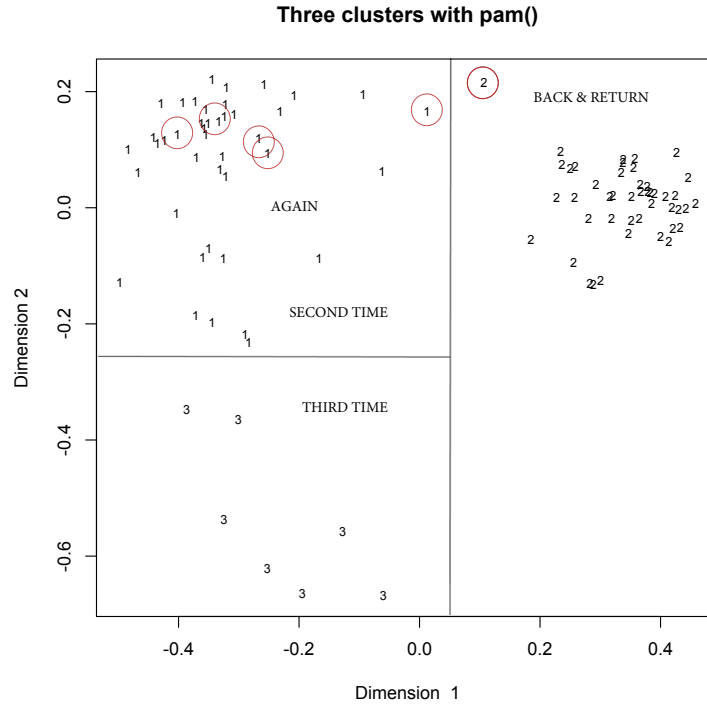
(19) Example of contexts with restitutive *again* in the Lexham English Bible

- a. My children, for whom I am having birth pains *again*, until Christ is formed in you! (48004019)
- b. Jesus answered and said to her, "Everyone who drinks of this water will be thirsty *again*." (43004013)
- c. Do you want to be enslaved to them all over *again*? (48004009)
- d. And after eight days his disciples were *again* inside, and Thomas with them. Although the doors had been shut, Jesus came and stood in their midst and said, "Peace to you." (43020026)
- e. No one takes it from me , but I lay it down voluntarily. I have authority to lay it down, and I have authority to take possession of it *again*. This commandment I received from my Father. (43010018)
- f. Because of this the Father loves me, because I lay down my life so that I may take possession of it *again*. (43010017)

The six restitutive contexts were encoded by a variety of expressions, as were the contexts containing repetitive *AGAIN*. Therefore, the few expressions of restitutive *AGAIN* mostly occur in CLUSTER 1, with the repetitive *AGAIN* expressions and they cannot be distinguished from each other. More data is needed in order to draw any conclusions. What is interesting, however, is that two of the contexts containing restitutive *AGAIN* occur between CLUSTER 2 and the bulk of CLUSTER 1 on the semantic map, as can be seen in figure 9 where the contexts containing restitutive *AGAIN* are marked with red circles. The contexts shown in example (19) are ordered after their positions on the map, i.e. (16a) is the leftmost expression and (16f) is the rightmost expression. The positions of the six restitutive contexts on the map reflect the scalar nature of the semantic map, and the semantic domain itself. This is investigated further in section 4.3.

The encoding of repetitive and restitutive meaning can also be investigated from a wider perspective. By investigating what expressions occur in what clusters, it can be determined whether an expression only encodes repetitive meaning, only restitutive meaning or is ambiguous. CLUSTER 1 contains expressions meaning *AGAIN* and *SECOND TIME* which are repetitive (most of *AGAIN* except the contexts in (9)).

Figure 9: Probabilistic semantic map of where restitutive AGAIN occurs in the three clusters



CLUSTER 3 contains the expression *THIRD TIME* which is also repetitive. These two clusters are found on the left side of the probabilistic semantic map, which is therefore the repetitive side of the map. CLUSTER 2 contains expressions such as *RETURN* and *BACK*, which are restitutive. They occur on the opposite side of the map compared to the repetitive expressions. By determining in which cluster, or on which side of the semantic map, an expression occurs it can be determined whether it encodes repetition or restitution. An expression which occurs only in CLUSTER 1 and 3, the repetitive clusters, or only in CLUSTER 2, the restitutive cluster, is deemed to encode the corresponding meaning exclusively. An expression which occurs in both CLUSTER 1 (and 3) and CLUSTER 2 is deemed to be potentially ambiguous (henceforth simply termed "ambiguous" for the sake of simplicity), and thus capable of encoding both repetitive and restitutive meaning.

In table 6 the sample languages are categorized according to the type of expressions they have. In the table, the column marked with REP signifies an exclusively repetitive expression which only occurs in clusters 1 and 3. The column marked with RESTV signifies an exclusively restitutive expression which only occurs in CLUSTER 2. The third column stands for expressions which are ambiguous and occur in both repetitive and restitutive clusters. A plus signifies the existence of an expression and a minus sign the lack of an expression. For a full list of what expressions the sample languages have, see Appendix B.

In total, 10 languages in the sample clearly separate repetitive and restitutive meaning and have expressions which only occur in CLUSTER 1 (and 3), or in CLUSTER 2. The expressions in these languages have a distinct repetitive or restitutive meaning and are not ambiguous. In 11 languages in the sample, there are also distinct repetitive and restitutive expressions, but ambiguous expressions as well. In these languages there is a distinct contrast between repetitive and restitutive expressions, but there are also expressions in the same language that are ambiguous between the repetitive and restitutive readings. These languages differentiate between repetitive and restitutive meaning in some contexts, and in other contexts an ambiguous expression is used. In 12 languages, there is a distinctive repetitive expression which only encodes this function but does not have an opposing restitutive contrast. In these languages, what would be the restitutive expression is ambiguous between repetitive and restitutive meaning.

There is therefore no clear way of expressing restitution alone, since these expressions are ambiguous, but repetitive meaning can be expressed.

Table 6: Encoding of repetitive and restitutive meaning in the sample languages

REP	RESTV	Ambiguous	No. of lgs
+	+	-	10
+	+	+	11
+	-	+	13

The results show that repetitive and restitutive meaning is a valid difference in a majority of the sample languages and that the distinction between the two meanings is possibly ambiguous in about a third of the sample. A general tendency in the sample languages is that all languages have a distinctive repetitive expression that is unambiguous. There is therefore an asymmetry in the encoding of repetition and restitution where repetitive meaning is privileged. I therefore propose the following universal, which I name The Universal of Repetitive Privilege:

(20) The Universal of Repetitive Privilege

Languages have at least one exclusively repetitive expression

When it comes to restitutive meaning there is more variation in the ways it can be encoded. Some languages have a distinctly restitutive expression, some do not, and some languages have both a distinct restitutive expression as well as an ambiguous expression. In fact, 24 languages, or 70 percent, of the sample languages has one or more ambiguous expressions. It is apparent that the distinction between repetitive and restitutive meaning described in the semantic literature is sometimes explicitly encoded in the worlds languages, but also that the two senses are often ambiguous.

4.3 The structure of the repetitive and restitutive domain: or the TURN-hierarchy

The findings suggest that repetitive and restitutive meaning form a continuum of meanings. This is illustrated in figure 11 which shows the internal structure of the semantic domain of repetition and restitution. What I here call the TURN-hierarchy is a schematic way to represent the results from the probabilistic semantic maps and Partitioning, thus showing that the domain in question, with some abstraction, can be viewed as a single continuous scale. The name is an acronym for restiTUtion and RepetitioN or for Time - retUrn - agaiN.

The hierarchy mirrors the continuum which can be seen in the semantic map of the clusters in figure 10, and stretches from repetitive meaning on the left (CLUSTER 3) to restitutive meaning on the right (CLUSTER 2). One might imagine that the horseshoe-like shape found in the semantic map repeated in figure 10 has been straightened, so that the bottom left part of the semantic map, CLUSTER 3 or THIRD TIME, is located on the far left of the figure. The top right part of the map, CLUSTER 2 or BACK, RETURN is located to the far right of the figure. The intermediate section of the hierarchy contains CLUSTER 1 or AGAIN, SECOND TIME. The dotted lines in the figure represent the division between the three clusters. The colours blue and red represents repetitive and restitutive meaning and should be interpreted as a way to describe the readings of the individual expressions. In this case, the terms repetitive and restitutive serve as umbrella terms for both the central and peripheral senses found in the semantic domain (cf. table 2). Contexts with, for example, RETURN and BACK might encode the senses restitutive, reditive and rearward, which are represented by the central notion of restitution in the figure. THIRD TIME and SECOND TIME are repetitive expressions and are therefore placed on the blue segment of the scale, even though they belong to different clusters. RETURN and BACK are restitutive and therefore placed in the red segment of the scale. They are given in conjunction because both expressions occur throughout

CLUSTER 2. AGAIN, on the other hand, can have both a repetitive and a restitutive meaning and is thus located in the intermediate section of the scale which is of a purple color, or a mix of repetitive blue and restitutive red.

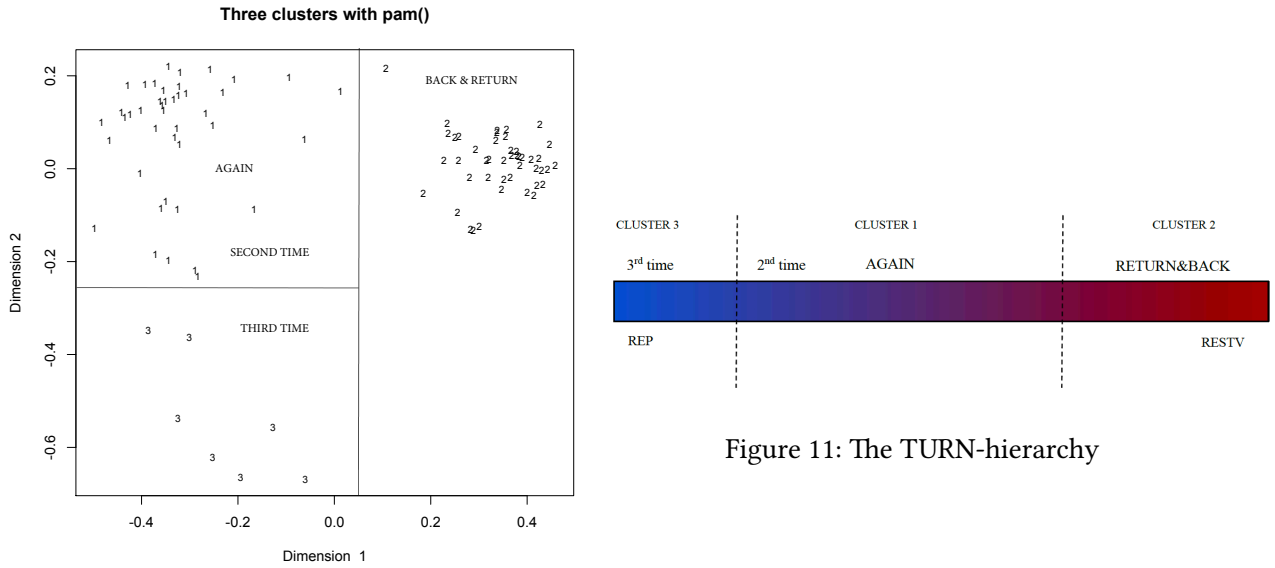


Figure 11: The TURN-hierarchy

Figure 10: Probabilistic semantic map of the clusters

The TURN-hierarchy is an abstract representation of a semantic domain, but is based on performance data, in this case examples from a corpus. It is therefore possible to depict the hierarchy with a more or less abstract surface pattern, which I call levels. In other words, it would be possible, although not very practical, to layer each of the 94 example contexts on the hierarchy based on where they occur in the probabilistic semantic maps. From left to right on the map, each context or expression is increasingly more restitutive. This would be the least abstract level possible to apply to the scale. The third most abstract level of representation is seen in figure 11, i.e. the clusters. Here, the individual examples are assembled into more abstract clusters which stand for the assembled meaning of all the expressions in said cluster. The second most abstract level is one where there is only a distinction between repetitive and restitutive meaning. The most abstract level would be one where the distinction between repetitive and restitutive meaning is not made.

As mentioned in section 4.2, there are 10 languages in the sample that do not have expressions which are ambiguous with regard to repetitive and restitutive meaning. These languages clearly illustrate the validity of the TURN-hierarchy, since the expressions found in those languages neatly fit into the hierarchy one by one. This is further explicated in section 4.3.1.

The majority of the languages, however, do have ambiguous expressions. This fact is, all things considered, not problematic for the validity or applicability of the hierarchy. The ways in which language specific expressions delimit the TURN-hierarchy varies greatly from language to language. One commonality is that there is no language with an expression which encodes both of the disconnected clusters 2 and 3. If an expression is found in clusters 2 and 3, it is always found in CLUSTER 1 as well. This speaks in favour of the universal applicability of the TURN-hierarchy which holds for all languages in the sample. The language specific expressions found in the sample languages show that the ways in which the hierarchy can be delimited varies from language to language. This is further explored in the following section.

4.3.1 Delimitation patterns in the TURN-hierarchy

The TURN-hierarchy is delimited by language specific expressions in various ways depending on the language considered. The ways in which this delimitation is structured varies greatly from language to language. As mentioned in section 4.2, the languages in the sample can have both ambiguous and non-ambiguous expressions, which encode only repetitive meaning, only restitutive meaning or both. Table 6 in section 4.2 shows one way of dividing the languages in the sample, namely according to what kind of expressions they have; repetitive, restitutive or ambiguous expressions. This division is useful for illustrating how repetition and restitution is encoded in the sample languages, but does not capture the great variety of patterns in how the languages delimit the continuum of meaning that is the TURN-hierarchy. This diversity is easiest shown by dividing the languages into types based on what pattern of delimitation they exhibit, and illustrating each type with one language. Doing this forms a typology of sorts, but should not be considered an attempt at a universal typology. The typology sketched below is one way of presenting the many patterns by which the sample languages delimit the hierarchy.

Language specific expressions inhabiting the repetitive and restitutive domain can be thought of as having different coverage of the three clusters in the domain. The expressions found in the sample can be categorized into two types: cluster-exclusive and cluster-transcending, as can be seen in table 7. A cluster-exclusive expression only occurs in one cluster. A cluster-transcending expression occurs in more than one cluster. This type of expression is usually frequent and most often occur in one cluster more than the others. Thus, there are two sub-types of cluster-transcending expressions: ones that are most frequently found in CLUSTER 1 and less in CLUSTER 2 (cluster-transcending AGAIN), and ones that are most frequently found in CLUSTER 2 and to a lesser extent in CLUSTER 1 (cluster-transcending BACK, RETURN). In total, 24 languages in the sample have one or more expression of the cluster-transcending type and 10 only have expression which are cluster-exclusive. It therefore seems like expressions like English *again* which can encode both repetition and restitution, are relatively common.

Table 7: Types of repetitive and restitutive expressions

Expression types	Expression sub-types	No. of lgs
Cluster-transcending	Cluster-transcending AGAIN	24
	Cluster-transcending BACK, RETURN	
Cluster-exclusive	n/a	10
Total:		34

The sample languages can be divided into four types based on how they delimit the TURN-hierarchy, i.e. what type of expressions they have (c.f. table 7). The four pattern types are exemplified by German, French, Hixkaryana and Somali in figures 12-19. The figures showing the delimitation of the TURN-hierarchy for each language are simplified illustrations and contain only the most common expressions. The figures are therefore accompanied by the corresponding semantic map to show both how the TURN-hierarchy mirrors the semantic map, and that reality is more complex than apparent in the schematic figures.

German displays a delimitation pattern of type 1. It has one or more expressions which mainly occur in CLUSTER 1, which also encode some contexts in CLUSTER 2, illustrated in figure 13. A language of type 1 can also be thought of as having cluster-transcending AGAIN. The boxes encompassing each language specific expression in figure 13 signifies the coverage of that expression. In German, the expressions *dritte Mal* ‘third time’, *zweites Mal* ‘second time’ and *zurück* ‘back’ are cluster-exclusive expressions and occur in CLUSTER 3, CLUSTER 1 and CLUSTER 2 respectively. Their corresponding boxes are therefore limited to the one cluster that expression occurs in. *Dritte Mal* ‘third time’ and *zweites Mal* ‘second time’ express repetitive meaning only, while *zurück* ‘back’ expresses only restitutive meaning. German *wieder* ‘again’, however, is cluster-transcending and occurs most frequently in CLUSTER 1, and to a lesser extent

in CLUSTER 2. Thus, it can encode both repetitive and restitutive meaning and the box surrounding it crosses over to CLUSTER 2.

Looking at the semantic map in figure 12 some less frequent expressions can be spotted. Note that the colors on the semantic map and the colors of the TURN-hierarchy unconnected. The expressions *weg* ‘away’, *abwenden* ‘avert’ and *hinten* ‘behind’ are supposedly cluster-exclusive since they only occur in CLUSTER 2, but there are so few occurrences that it might be too early to say. Other expressions such as *noch einmal* ‘once again’ and *von neuem* ‘anew’ only occur in CLUSTER 1. The German expressions delimit the TURN-hierarchy starting with *dritte Mal* ‘third time’, followed by *zweites Mal* ‘second time’ and then *wieder* ‘again’ and finally *zurück* ‘back’. In German, *wieder* is an ambiguous or cluster-transcending expression which can encode both repetitive and restitutive meaning, but there are also contrasting expressions such as *zweites Mal* and *zurück* which express repetitive or restitutive meaning only. German therefore has strategies to express both repetitive and restitutive meaning, but the distinction is still often ambiguous since *wieder* is very commonly used.

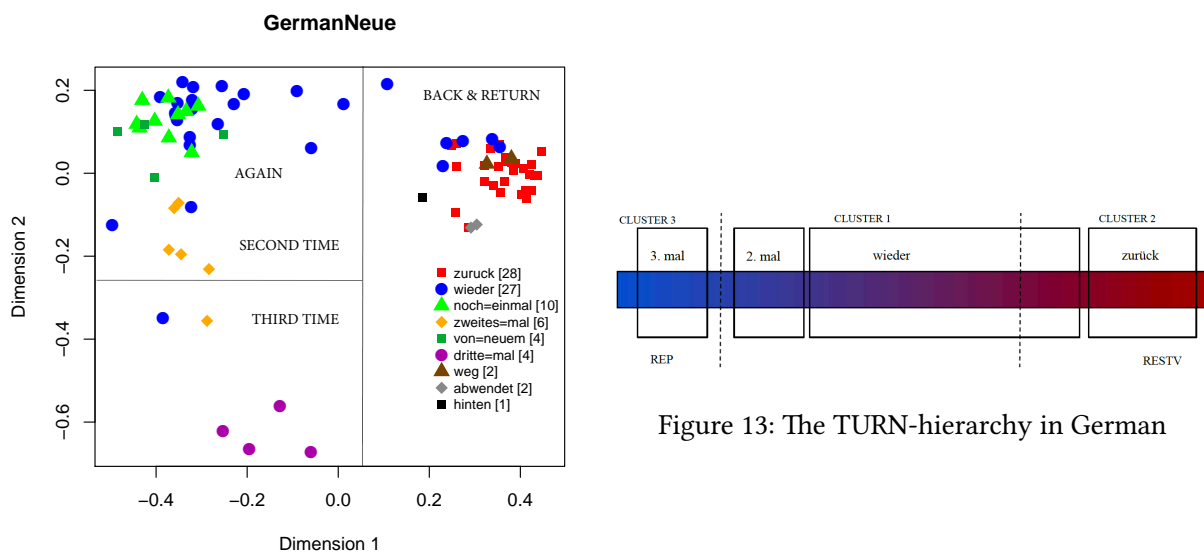


Figure 12: Probabilistic semantic map of German [deu]

French exhibits a pattern of the second type, where a cluster-transcending expression occurs most frequently in CLUSTER 2 and extends into CLUSTER 1. A language of type 2 can also be thought of as having cluster-transcending BACK, RETURN. French *troisième fois* ‘third time’, *seconde fois* ‘second time’ and *de nouveau* ‘again’ are cluster-exclusive. They occur in clusters 3 and 1 respectively, as illustrated by the box enclosing each expression in figure 15, and do not cross over to another cluster. French *re-* ‘again’, on the other hand, is an example of an expression which is cluster-transcending. It occurs most often in CLUSTER 2 and to a lesser extent in CLUSTER 1, as illustrated by the box spanning over both CLUSTER 2 and CLUSTER 1. This is not to say that the restitutive part of the semantic domain under investigation is larger or more prevalent in French, but that *re-* ‘again’ is an expression which can be used to express both repetitive and restitutive meaning. French expressions less common within the domain can be seen in figure 14. *Encore* ‘again, still’ and *une fois* ‘one time’ are both found only in CLUSTER 1, but are so rare that it is difficult to say whether they are cluster-exclusive or not. Similarly, *arrière* ‘behind’ occurs three times in CLUSTER 2, and is probably cluster-exclusive, but rare.

Compared to German, the French expressions delimit the continuum in the opposite way. French *re-* ‘again’, mainly occurs in CLUSTER 2, but extends into CLUSTER 1 as well, as opposed to German *wieder* which is most frequent in CLUSTER 1 but also extends into CLUSTER 2. Both expressions are similar since they encode both restitutive and repetitive meaning, but differ in terms of which contexts they are most

often found. French has several expressions which clearly encode repetitive meaning, but *re-*, which is mostly used to express restitution, is ambiguous. It is possible that *arrière* could be an oppositional contrast to the repetitive expressions, but it occurs very few times in the data and it is thus difficult to draw any certain conclusions.

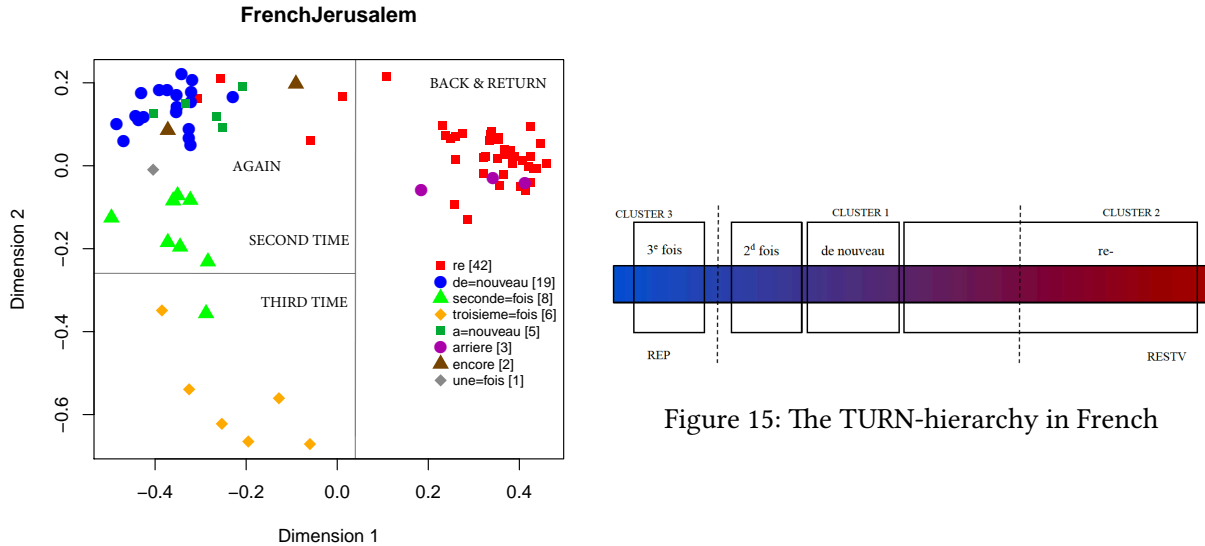


Figure 14: Probabilistic semantic map of French [fra]

The third pattern is exemplified by Hixkaryána, a Cariban language spoken in Brazil. Languages which pattern in the third way have two cluster-transcending expressions, one of each sub-type. One that most frequently occurs in CLUSTER 1 and one which most frequently occurs in CLUSTER 2. Both expressions extend into the other cluster. A language of type 3 can also be thought of as having both cluster-transcending AGAIN and cluster-transcending BACK. In Hixkaryána, the expressions *xarha* ‘again’ has both a repetitive and additive meaning and is commonly translated as *again*. Hixkaryána *harha* ‘again, back’ denotes a change of state or returning to a former state or location (Derbyshire 1979: 140, 161). The expression *osorwawo ro* ‘third time’ consists of *osorwawo* ‘three’ and *ro* ‘time’ (Derbyshire 1979: 198). Hixkaryána *xarha* ‘again’ occurs most frequently in CLUSTER 1 but extends into CLUSTER 2 as well. *Harha* ‘again, back’ is most frequent in CLUSTER 2 and occurs to a lesser extent in CLUSTER 1. *Osorwawo ro* ‘third time’ is cluster-exclusive and is only found in CLUSTER 3.

The three Hixkaryána expressions *xarha* ‘again’, *harha* ‘again, back’ and *osorwawo ro* ‘third time’ are illustrated in a probabilistic semantic map in figure 16. There are no strict oppositional contrasts between repetitive and restitutive meaning in Hixkaryána since both *xarha* ‘again’, *harha* ‘again, back’ can express both meanings. *Osorwawo ro* ‘third time’ is repetitive, however, and it is probable that *ro* ‘time’ can be used to express repetitive meaning with other ordinal numbers, but that it was not found in the investigated examples.

The fourth pattern of delimitation is exemplified by Somali in figure 19. Languages with the fourth pattern only have expressions which are cluster-exclusive. Somali *mar kale* ‘again, once more’ and *haddana* ‘again’ both occur throughout CLUSTER 1. *Saddexaad* ‘third’ only occurs in CLUSTER 3 and *noqon* ‘back’ only occurs in CLUSTER 2. In addition to *haddana* ‘again’ and *mar kale* ‘once again’ there is one more expression exclusive to CLUSTER 1: *mar labaad* which translates to ‘second time’. In CLUSTER 2, in addition to *noqon* ‘back’, there is *dib* and *dib noqon* which mean roughly the same ‘back, go back’ and *celi* ‘repeat, say back’. In CLUSTER 3 the expression *saddexaad* ‘third’ is found.

The four patterns are all common in the sample, illustrated in table 8 and on a map in figure 20. Type 5 on the map signifies the languages which are labeled as unclear in table 8. Ten languages, or

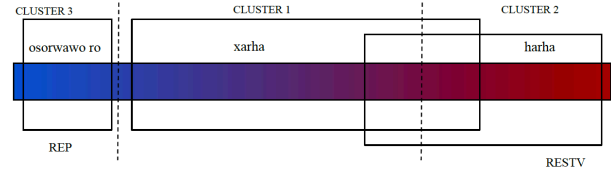
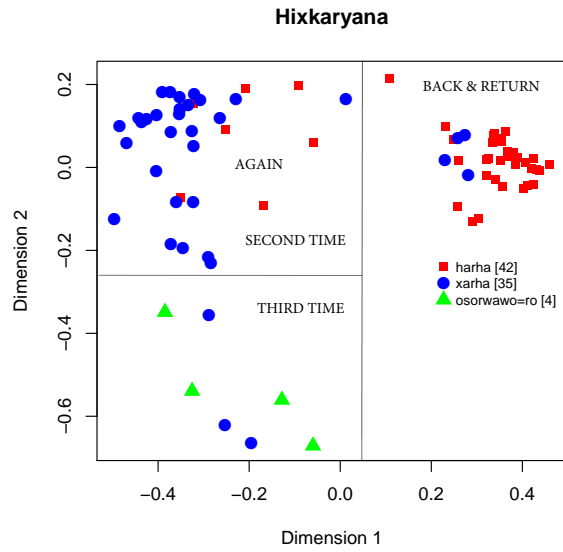


Figure 17: The TURN-hierarchy in Hixkaryana [hix]

Figure 16: Probabilistic semantic map of Hixkaryana [hix]

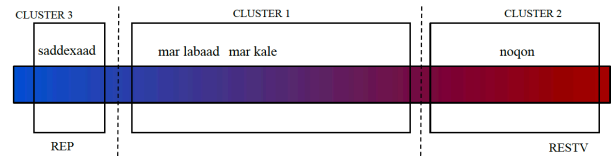
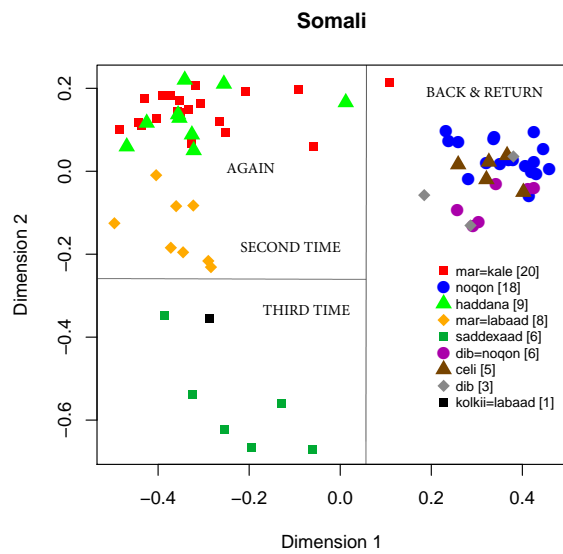


Figure 19: The TURN-hierarchy in Somali [som]

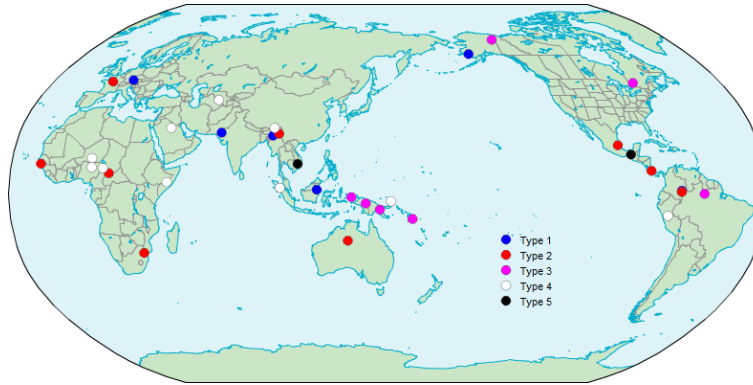
Figure 18: Probabilistic semantic map of Somali [som]

27 percent, show patterns of type 4, making it the most common type. Nine languages, or 26 percent, exhibit patterns type 2 making it the next most common type. Eight languages, or 23 percent, are of type 3. Least common are languages with delimitation patterns of type 1, with 6 languages, or 17 percent of the sample. There were two languages for which a type could not be determined: Central Mnong and Tzeltal. The delimitation pattern for Central Mnong differs from that of the other languages in the sample. This is discussed further in section 5.3. In the case of Tzeltal, there was not enough data for expressions such as RETURN or BACK and it was therefore excluded.

Table 8: Delimitation patterns in the TURN-hierarchy

Pattern	Description	Languages	Total
1	Cluster-transcending AGAIN	Aimol, Central Alaskan Yupik, Eastern Lowland Kenyah, German, Kotiria, Sindhi	6 (0.18)
2	Cluster-transcending BACK, RETURN	Cabecar, French, Huehuetle Tepehua, Jola-Fonyi, Nangnda, Southern Jinghpaw, Tucano, Warlpiri, Zulu	9 (0.26)
3	Cluster-transcending AGAIN Cluster-transcending BACK, RETURN	Algonquin, Gwich'in, Hixkaryana, Moskona, Nalca, Owa, Patep	7 (0.21)
4	cluster-exclusive	Batak Toba, Central-Eastern Niger Fulfulde, Galo, Hausa, Huallaga Huánuco Quechua, Kara-Kalpak, Madak, Mbuko, Somali, Standard Arabic	10 (0.29)
n/a	unclear	Central Mnong, Tzeltal	2 (0.06)
Total:			34 (1.0)

Figure 20: Map of delimitation patterns in the TURN-hierarchy in the sample



4.4 Summary

This section provides summarized answers to the research questions posed in 1.1, as well as other important findings.

A universal hierarchy was proposed in section 4.3, which I named the TURN-hierarchy. It includes all expression types investigated in the present study, ordered from repetitive expression to the left and restitutive expressions to the right, and holds for all languages in the sample. The hierarchy is based on performance data and therefore has different levels of abstractions. It is possible to both layer all 94 language specific expressions found in each context on the hierarchy, which is the least abstract level, and to layer the more abstract clusters which stand for the combined meaning of a group of expressions on the hierarchy. The different levels of abstraction are possible because I built the hierarchy bottom-up from exemplar data. It is therefore an important methodological result as well.

The following can be said about the encoding of repetitive and restitutive meaning. Repetition and restitution are often encoded differently in the sample languages, but sometimes not. The results show that repetitive and restitutive meaning is a valid difference in a majority of the sample languages and that there is ambiguity with regards to the encoding of repetition and restitution in about a third of the sample. All sample languages have an exclusively repetitive expression and I therefore propose the following universal:

- (21) The Universal of Repetitive Privilege
Languages have at least one exclusively repetitive expression

When it comes to restitutive meaning, there is more variation. The majority of the languages in the sample have one or more attested exclusively restitutive expression, but about a third do not. Thus, some languages have oppositional contrasts between restitutive and repetitive meaning, and some do not.

As for language specific patterns, there is a great diversity in the ways which the sample languages delimit the continuum of meaning that is the TURN-hierarchy. In total, a number of four language specific patterns could be identified. Type 1, in which one or more expressions mainly occur in CLUSTER 1 and extend into CLUSTER 2. These languages have cluster-transcending AGAIN. Type 2, in which one or more expressions mainly occur in CLUSTER 2, and also encode some contexts in CLUSTER. These languages have cluster-transcending BACK, RETURN. Languages of type 3 have both These languages have cluster-transcending AGAIN and BACK, RETURN. One of which occurs most frequently in CLUSTER 1 and extends into CLUSTER 2, and the other which occurs most often in CLUSTER 2 and extends into CLUSTER 1. Languages with a pattern of type 4 have expressions which are cluster exclusive and do not extend into other clusters. They are either repetitive or restitutive.

5 Discussion

This section is organized as follows. In 5.1, the major findings of the study are discussed and compared to earlier studies. In section 5.2, the synchronic results of this study is compared with diachronic developments. In 5.3 languages and expression which differ from the rest of the sample are discussed. Section 5.4 provides ideas for future research. In 5.5, methodological issues are discussed.

5.1 Prominence scales and typological classifications

The typological study by Stoynova (2013) and the semantic literature on repetitive and restitutive AGAIN (Fabricius-Hansen 2001; Zwarts 2018; von Stechow 1996) all make a distinction between repetitive and restitutive meaning, often only based on analysis of a single expression in one or a few languages. The result of this study suggests that repetitive and restitutive meaning form a continuum. This is illustrated in the TURN-hierarchy in figure 11. The typology of repetition and restitution by Stoynova (2013) divides the semantic domain into central and peripheral categories. The two central categories repetition and restitution are seen as separate meanings but of equal importance. As we have seen throughout chapter 4, it is not easy to separate repetitive and restitutive meaning since the distinction between repetition and restitution is not always explicitly encoded in the sample languages. There are 13 languages which do not have an exclusively restitutive expression, but an ambiguous expression which can encode both repetitive and restitutive meaning. Repetitive and restitutive meaning in these languages is therefore possibly ambiguous.

As to the reason why this ambiguity occurs, it is difficult to say for sure. Repetitive and restitutive meaning are similar and both readings are often possible interpretations in the same context. It is evident, however, that looking at the meaning of individual repetitive or restitutive expressions in a language conceals the fact that they are all part of a larger continuum. Only when adopting a wider perspective does this become apparent. While it is true that AGAIN has both repetitive and restitutive readings, the larger picture is lost in studies focusing only on a single expression in one language, as can be seen in the semantic maps of the different readings of German *wieder* ‘again’ and Dutch *terug* ‘back’ in figures 2 and 3 in section 2.3. The present study shows that it is beneficial to combine both a detailed view of a single expression type, such as *again*, with a broader perspective of where that expression is aligned in the semantic space with other similar expressions.

The present study incorporates two common typological methods: prominence scales and typological classifications. Implicational universals in typology are often described using a prominence scale or hierarchy, which is broadly applicable to that particular functional domain (Haspelmath 2008: 19). A classification where a functional domain is divided into categories and languages into types based on what categories they have is also widely used, especially in smaller domains. A well-constructed hierarchy can easily be translated into a classification, which is what has been done in sections 4.2 and 4.3.1, presented in tables 9 and 10, repeated below for the sake of convenience. In this case, the hierarchy is more widely applicable and holds for all languages in the sample, unlike the classifications which only show possible ways in which the sample languages can be categorized. This shows that a smaller domain such as that of repetition and restitution benefits from a method which produces a widely applicable hierarchy.

Regarding the two classifications in tables 9 and 10, they might seem similar at first glance. Two different classifications were made to answer the research questions posed in 1.1. The first classification divides the languages according to whether they have an exclusively repetitive expression, an exclusively restitutive expression, an ambiguous expression or some combination thereof. The second classification divides the sample languages according to how they delimit the TURN-hierarchy. The two classifications therefore classify the sample languages in different ways and have different purposes.

In order to investigate how the sample languages encode repetitive and restitutive meaning in general, the languages were classified according to ambiguous and unambiguous expressions. This classification is more general as it does not explicate in what way a language specific expression is ambigu-

Table 9: Encoding of repetitive and restitutive meaning in the sample languages

REP	RETV	Ambiguous	No. of lgs
+	+	-	10
+	+	+	11
+	-	+	12
-	-	+	1

Table 10: Delimitation patterns in the TURN-hierarchy

Pattern	Description	Total
1	Cluster-transcending AGAIN	6 (0.18)
2	Cluster-transcending BACK, RETURN	9 (0.26)
3	Cluster-transcending AGAIN	7 (0.21)
	Cluster-transcending BACK, RETURN	
4	cluster-exclusive	10 (0.29)
n/a	unclear	2 (0.06)
Total:		34 (1.0)

ous. This is investigated further in the second classification of delimitation patterns. It is evident upon further examination that the sample languages commonly have cluster-transcending AGAIN, cluster-transcending BACK or both. What this classification does not show is whether a language has other expressions which are repetitive or restitutive, which the first classification does. The first classification thus classifies languages according to both ambiguous and unambiguous expression and the second according to the ambiguous expressions only. Both classifications contribute to the understanding of the domain as a whole since they illustrate how the sample languages encode repetitive and restitutive meaning in different ways, and are thus both beneficial to the present study.

5.2 Aligning synchrony with diachrony

Restitutive markers are commonly found to be a source for repetitive markers, as mentioned in 2.2. Languages with a delimitation pattern of type 2, with cluster-transcending BACK or RETURN are highly compatible with and might be evidence for diachronic development of BACK or RETURN to AGAIN, or restitutive to repetitive. This does not necessarily mean that there is an on-going development in all of the type 2 languages, but the synchronic results of this study are well in-line with earlier claims that restitutive markers develop into repetitive markers.

Does it follow, then, that languages of type 1 with cluster-transcending AGAIN are evidence for the opposite development? Other than it not being an attested development in the literature, there is also the fact that there is no language in the sample which has an exclusively restitutive expression and no exclusively repetitive expression (cf. table 9). Since the dataset includes expressions meaning THIRD TIME and BACK, which are supposedly either only repetitive or only restitutive, I initially expected that the sample languages would reflect that, i.e. that some languages would have an exclusively restitutive expression and an ambiguous expression. If this was the case, it would also better reflect the delimitation patterns of the TURN-hierarchy in table 10, where type 1 has cluster-transcending AGAIN. It might be the case that THIRD TIME, or expressions containing TIME in general, are a better starting point for capturing repetitive expressions since TIME is countable. Repetitive meaning refers to the repetition

of an entire event which can be counted. It is therefore likely that expressions occurring in contexts with *THIRD TIME* will be exclusively repetitive. The fact that no language has an exclusively restitutive expression without an exclusively repetitive expression might indicate that restitutive expressions often develop into repetitives and are therefore more likely to be ambiguous. Repetitive markers do not have a tendency to develop into restitutive markers and are thus less likely to be ambiguous.

The universal proposed in 4.2, repeated in example (28), is also compatible with the diachronic development of restitutive markers. Languages have at least one exclusively repetitive expression since they are less likely to be ambiguous due to them not developing from restitutive expressions.

(22) The Universal of Repetitive Privilege

Languages have at least one exclusively repetitive expression

5.3 Outliers

In this section expressions and languages which are outliers in one way or another are discussed. In short, what kind of outliers are there and to what extent are these exceptions to the hierarchy?

5.3.1 Outlier languages

There is one outlier language that is an exception to the typological classification in section 4.3.1 which classifies languages with regards to whether they have cluster-transcending *AGAIN* or cluster-transcending *BACK, RETURN*. This language is, however, not an exception to the hierarchy.

Central Mnong is an Austroasiatic language spoken in Vietnam which delimitates the *TURN*-hierarchy in a way different from the other languages in the sample, as can be seen in figure 21. The expressions *tay* ‘more’ and *jat* ‘again, more’ are used both as single morphemes and together with *du to* whose meaning could not be determined. *Tay* ‘more’ stands out since it is used by itself both in *CLUSTER 1* and *CLUSTER 2* to equal extents. It also occurs once in *CLUSTER 3*. It can thus be considered a very general expression which encodes both repetitive and restitutive meaning. *Tay* ‘more’ is also used together with *du to* and *jat* ‘again, more’ and forms a cluster-exclusive expression which only occurs in *CLUSTER 1*. By itself, *jat* ‘again, more’ is cluster-exclusive and only occurs in *CLUSTER 2*. Together with *du to* it occurs in *CLUSTER 1* and *3* which are both repetitive clusters. Central Mnong can therefore not be classified as type 1 or type 2, since it does not have an expression which occurs more frequently in one of the clusters. It cannot be considered type 4 either since *tay* ‘more’ occurs in two clusters. It cannot be classified as having a pattern of type 3, since *jat* ‘again, more’ by itself only occurs in one cluster, and together with *du to* in only one cluster as well. The *TURN*-hierarchy is, however, still applicable even if the classification cannot be applied to Central Mnong. This speaks in favor of the universal applicability of the hierarchy and against a universal applicability of the classification.

5.3.2 Outlier expressions

Expressions can also be outliers, as can be seen in figures 22 and 23 below marked with black arrows. There are many possible explanations for outlier expressions, such as mistakes in the data where an expressions occurs in the wrong part of the verse, or has a different meaning altogether. Both Batak Toba and Madak are Austronesian languages spoken in Indonesia and Papua New-Guinea respectively. They are both classified as languages with delimitation patterns of type 4 since their respective repetitive and restitutive expressions occur in the two repetitive clusters or the restitutive cluster only. However, in both translations there is one context where one repetitive expressions occurs in the restitutive *CLUSTER 2*.

In Batak Toba *dung* ‘ever’ is used in contexts with English *again*, *second time* and *third time* and is solely repetitive. But it occurs once in *CLUSTER 2* in a context with English *back*, which can be seen in example (23). Upon closer inspection it turns out that this expression was in the wrong part of the verse,

(23) Example of *dung* 'ever' in Batak Toba [bbc] [glossed by Bernhard Wälchli] (43018006)

<i>Asa</i>	<i>dung</i>	<i>didok</i>	<i>tu</i>	<i>nasida</i>	<i>ahu</i>	<i>do</i>	<i>i</i>	<i>sumurut</i>	<i>ma</i>	<i>nasida</i>	<i>angka</i>
in.order.that	dung	say	to	3PL	1SG	?	?	retreat	MODAL.PARTICLE	3PL	?
<i>martinggangan</i>	<i>ma</i>	<i>tu</i>	<i>tano</i>								
?	MODAL.PARTICLE	to	ground								

Similarly, the outlier in Madak was also a mistake in the data, as can be seen in example (24). In Madak *bok* ‘again, also’ is used in CLUSTER 1 but occurs once in CLUSTER 2 as well. When further investigated it turns out that this context which corresponds to English *return* was rephrased in a way which excluded any RETURN expressions. In this context *bok* means ‘also’ and not ‘again’.

‘Who when he was reviled , did not revile in return ; when suffering , he did not threaten , but entrusted himself to the one who judges justly.’

35

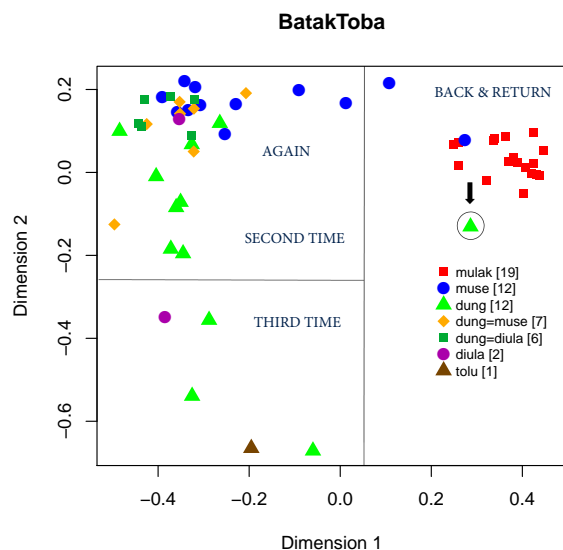


Figure 22: Semantic map of Batak Toba [bbc]

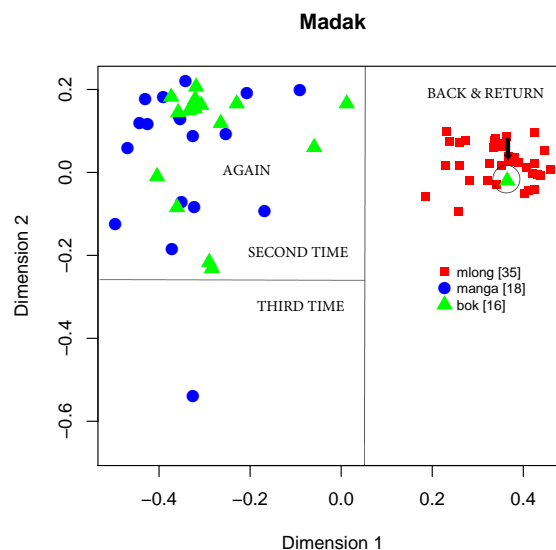


Figure 23: Semantic map of Madak [mmx]

5.4 Further broadening the perspective

It has been established that the continuum reflected by the TURN-hierarchy only is visible when more expressions are taken into consideration, rather than just an expression meaning *AGAIN*. This begs the question: what will become apparent if the perspective is broadened even further?

Some of the expressions found in the sample might shed some light on this question, presented in table 11. Two common meanings of repetitive expressions in the sample, other than *AGAIN* are *ALSO*, *MORE* and to a lesser extend *THEN*. These expression types both have something in common with *AGAIN* in terms of presuppositions or sequentiality. *AGAIN* is a sequential expression which presupposes an earlier event of the same type, i.e. ‘He came again’ conveys that the person came at least once before. An expression like Nalca *ono* ‘then’ is used to express contexts equivalent to English *again*. It is also sequential since it presupposes that something happened before, thus ‘Then he came’ presupposes that something happened before he came. *AGAIN* and *THEN* are therefore similar in that they are both sequential, but different in their presuppositions. While *AGAIN* presupposes ‘something similar before’, *THEN* has the more general presupposition ‘something before’.

It is also common for *AGAIN* to have an additive function like *ALSO* in the sample languages. In total this is found in four languages in the sample: Central Eastern Niger Fulfulde, Hixkaryána, Owa and Standard Arabic. The additive function of *ALSO* differs from that of *AGAIN* with regards to sequentiality, since *ALSO* is not necessarily sequential. The two expressions have similar presuppositions, however. ‘He came again’ and ‘He also came’ both convey repetition of a kind. In English, *again* refers to the repetition of the event of arriving somewhere, and *also* refers to the repetition of something or someone arriving. It is possible that for languages other than English this distinction is not made and that *ALSO* can refer to both the predicate and subject depending on the scope. In that case the two expressions are very similar since they both presuppose that something other than that referent is or has happened. The difference is that *AGAIN* also conveys sequentiality.

Similarly, *MORE* is a meaning found for repetitive expressions in four languages in the sample: Central Alaskan Yupik, Central Mnong, Moskona and Warlpiri. Just like *ALSO*, *MORE* lacks the sequentiality component of *AGAIN*. Unlike *AGAIN*, *MORE* applies equally well to countable and uncountable units. *AGAIN* is therefore more specific. Compare *He came again* to *He arrived once more*. Here, *more* presupposes ‘something similar but lesser/smaller’ since it is true that the person had arrived at least once before, which is a lower number of times than twice or thrice.

The expressions listed above all have something in common with *AGAIN* which is probably why both

Table 11: Languages with expressions with additional meanings other than AGAIN

Expression	Language
‘again, also’	Central Eastern Niger Fulfulde, Hixkaryána, Owa, Standard Arabic
‘again, more’	Central Alaskan Yupik, Central Mnong, Moskona, Warlpiri
‘again, then’	Nalca

meanings can be attributed to some expressions. If other expressions meaning only **ALSO** and **MORE** were explored they might expand the semantic space on the repetitive side. Including more similar expressions like this would be an interesting topic for future studies.

Furthermore, there are at least four facets of the domain which would benefit from further investigation. First, the isolated examples which occur in the atypical cluster, discussed in section 5.3. Are there languages with expressions containing outliers like these which speak against the **TURN**-hierarchy? It would be useful to study these types of outliers to further investigate the validity of the **TURN**-hierarchy. Second, the complex expressions which often comprises two already existing repetitive or restitutive expressions, discussed in 5.3.2. For example, Owa *aporo* ‘again, return’ and *nikao* ‘again, also’ which often co-occur (cf. figure 25) or Central Mnong *du to jat* ‘again’ of which the meaning of *du to* could not be determined. As of now, little is known about these expressions and it would therefore be valuable to study them further. Third, it would be beneficial to further investigate word classes. In the present study word classes or the morphological status of the investigated expression was not taken into account. This does not affect the validity of the **TURN**-hierarchy but it would be interesting to see what additional information can be gathered from studying the word classes of repetitive and restitutive expressions. Fourth, multiplicatives such as **SECOND TIME** and **THIRD TIME** are thus far a little explored class of expressions (see Veselinova (2020)). Numerals are not the focus of the present study, but the results nonetheless show that they have connections to other domains, such as that of repetition and restitution, which merit further investigation.

5.4.1 A special note to field linguists

Few grammars, if any, address the distinction between repetition and restitution. For most languages it is reasonable that grammar writers do not explore this topic. I would, however, like to make the following suggestion to a field researcher interested in the domain of repetition and restitution.

It would be beneficial to make use of the three clusters and the **TURN**-hierarchy when studying repetitive or restitutive expressions, instead of searching for **AGAIN** expressions with repetitive or restitutive meanings by themselves. Instead, one can investigate in which contexts a certain expression is used and divide them between the clusters. The next step is then to layer all repetitive and restitutive expression on the **TURN**-hierarchy as shown in, for example, figure 13.

5.5 Method discussion

In 5.5.1, the limitations and benefits of working with parallel corpora and using the Bible as source material is discussed. In 5.5.2, quantitative tools and visualization methods are discussed. In section 5.5.3, potential error sources are discussed.

5.5.1 Parallel corpora

Working with parallel corpora is, in essence, working with translations and has both problems and benefits alike. First and foremost, any translation will have a varying degree of influence from the source language, which is not ideal for a typological investigation. There is no way of knowing if a

sentence or an expression would have been expressed in another way in an original text or speech. Furthermore, a text is comprised of one single doculect of written language in a single register and is thus very narrow in its focus. There is surely some variation that will be missed by using corpus data (Stolz 2007: 102). There are, however, some major benefits of parallel corpora that still motivates their use.

As mentioned in 3.2, corpus data is especially useful for the present study. A phenomenon that is not a well established category in linguistics will often not be included in grammatical descriptions. The repetitive and restitutive distinction is not very well studied and will often be hard to find in a grammar. Since it is possible to study a large variety of contexts with corpus data, it is a good method for capturing language internal variation, which is precisely what this study aims to do. As mentioned in section 2.1, the phenomena in question is highly context dependent, since the variation between repetition and restitution is largely dependent on the type of predicate and pre-existing context and presuppositions. Corpus data does not exist in a vacuum, but in the larger context of the existing text and is thus ideal for studying context dependent phenomena (Stolz 2007: 102).

It is clear that translations as a data source are problematic. Bible translations in particular have some unique difficulties associated with them, of which two main areas can be identified: the source text and skopos, or purpose. There is no one source text for the Bible as we know it today. The sources are of varied origins that are still debated and in large, uncertain. It is comprised of Greek, Latin, Hebrew and Aramaic text dating back to antiquity, and like all texts from that era have a complex history (de Vries 2007; Stolz 2007). It is therefore hard to determine the level or kind of source text influence.

The second problem is associated with skopos, or authorial intent. Different missionaries and churches will have different motivations when translating the Bible into a new language. Some translations highly value influence by the source language because it is seen as important to translate everything exactly word for word, morpheme by morpheme so as to not lose any of the "original" text. Influence from the source language might also be valued since it feels other worldly and thus more divine. On the opposite end of the spectrum, there are translations that aim to be as natural for the target audience as possible to create a feeling of God speaking directly to them in their native language. Alternatively, because the translators know that there is a low chance that the target audience will have access to a priest or a similar figure to explain certain parts of the text, and will therefore add explanations and exposition not found in the source text (Stolz 2007: 154). The difference in skopos is thus a problem for the comparability of the texts. It is unclear how literal or natural the translation is and how closely the content matches that of the source text.

5.5.2 Partitioning and MDS

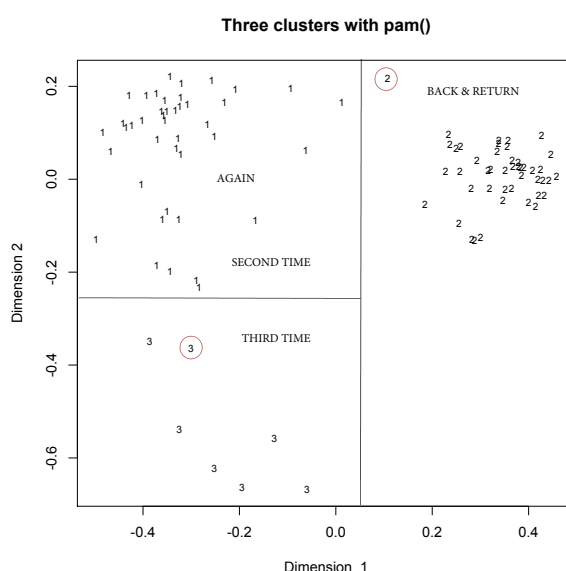
Partitioning Around Medoids (pam() in R) was used to create the three cluster on which most of the results are based. When using this method, three clusters were deemed to capture variation in the optimal way and were thus chosen. To reach this conclusion, dividing the expressions in the sample languages into two or four clusters was also explored but eventually discarded. It is nonetheless interesting to discuss the implications of using two, three and four clusters. If the number of clusters are reduced to two, expressions meaning THIRD TIME, SECOND TIME and AGAIN all occur in CLUSTER 1 and BACK and RETURN in CLUSTER 2. The repetitive and restitutive expressions are thus divided into two clusters. Since many expressions in CLUSTER 1 are ambiguous with regards to repetitive and restitutive meaning, they occur in both clusters to varying degrees. This was deemed the worse option since three clusters capture the difference in meaning between THIRD TIME on the one hand, and the often synonymous SECOND TIME and AGAIN on the other hand. Some languages in the sample do not make a distinction between SECOND TIME and AGAIN since they are similar in meaning, but use a different expression for THIRD TIME. Three clusters were therefore deemed to be the better option.

If the number of clusters was increased to four, the division was largely the same as with three clusters. One might expect the expressions meaning SECOND TIME to form a cluster of their own, but this was not the case. The fourth cluster contained empty slots for around half of the sample languages, and very few expressions for the other half. The expressions in CLUSTER 4 were also found in CLUSTER

2, i.e. restitutive expressions meaning BACK and RETURN. Quantitative and qualitative evaluation of the optimal number of clusters thus yielded the same result.

A problem with Partitioning which later became apparent was the fact that the algorithm sorted two contexts into the wrong clusters, shown in figure 24 marked with red circles. A context containing SECOND TIME was sorted into CLUSTER 3 and a contexts containing AGAIN was sorted into CLUSTER 2 (cf. section 4.2, example (19f)). In the case of AGAIN, this context is possibly ambiguous between a repetitive and restitutive reading, which can explain why it was sorted into CLUSTER 2. Some of the sample languages use an expression mostly found in CLUSTER 2 for that particular context which is why it was sorted as such. As for the context containing SECOND TIME in CLUSTER 3, as can be seen in example (25a) it contains both *second time* and *three times*. It it the case, then, that the expression for THREE TIMES was included in the database for some languages and not SECOND TIME? A closer look at the database shows that this is not the case, there is no expressions for THREE TIMES included in this specific slot. There are, however, a number of languages which use an expression meaning AGAIN in this context which might have affected the sorting algorithm.

Figure 24: Two contexts which were sorted into the wrong clusters



(25) Two contexts containing SECOND TIME and AGAIN which were sorted into the wrong clusters (Lexham English Bible)

- a. And immediately a rooster crowed for the *second time*. And Peter remembered the statement, how Jesus had said to him, “Before the rooster crows twice, you will deny me *three times*,” and throwing himself down, he began to weep. (41014072)
- b. Because of this the Father loves me , because I lay down my life so that I may take possession of it *again* . (43010017)

5.5.3 Potential error sources

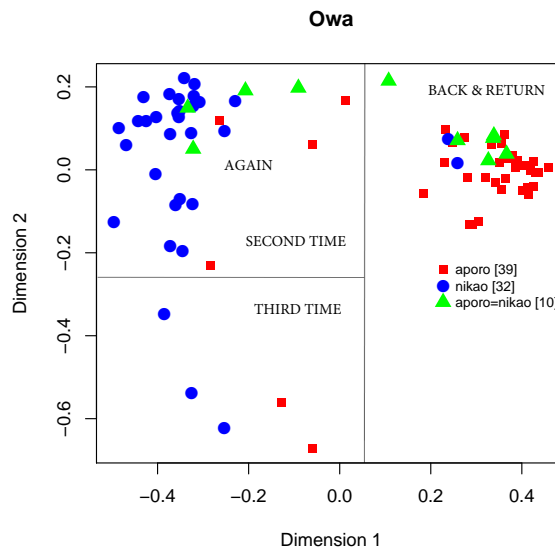
There are a number of possible errors in the source material that can affect the results, as mentioned in section 5.3. It is possible that expressions with additional meanings, which do not not only mean AGAIN have been wrongly included, that I have missed rare expressions, or that my knowledge of a language has affected my analysis of said language. These error sources do not affect the validity of the results, but are important to discuss nonetheless.

Many languages in the sample have expression with more than one meaning, such as Owa *nikao* ‘again, also’ (Mellow 2014: 144, 368). As can be seen in figure 25, *nikao* ‘again, also’ occurs two times in the restitutive CLUSTER 2. Upon further examination, however, it turns out that in these two particular examples *nikao* does not mean ‘again’, but rather ‘also’. As illustrated in example (26) below, it is apparent that *nikao* occurs in the wrong part of the verse, or means ALSO, and not ‘again’. Had these two outlier expressions not been examined further, it would not have been evident that Owa has an exclusively repetitive expression, which in turn would have been counter evidence against the universal presented in 4.2.

(26) Example of *nikao* ‘again, also’ in Owa (42023015, 44015036) [glossed by Bernhard Wälchli]

- a. *Hoi ko Herod make ma ni rogoia nikao, ka agua ni aera*
 well/so N_INIT.PNM.M Herod and.he NEG? find/meet too place bad/wrong
woi o wani kaa ni tanua.
 this? make
 ‘But neither did Herod, because he sent him back to us.’
- b. *Mina inuni ira ka ngere nikao ka woi, “Ai fagaakausia ko God*
 shout/cry.out nikao say praise N_INIT.PNM.M God
 ‘And after some days, Paul said to Barnabas Come then, let us return and visit the brothers in every town in which we proclaimed the word of the Lord, to see how they are doing.’

Figure 25: Semantic map of Owa [stn]



The sample contains languages which are more or less known to the author and have more or less available sources such as grammars and dictionaries. The available sources and my knowledge of the language affects the analysis of said language, but this is not problematic for the validity of the results. It is probable that I have missed infrequent expressions in languages that are unknown to me. A small scale experiment was conducted to test how prior knowledge of a language affects the analysis. This was done by comparing the analysis of the, to me, unknown language Nalca, with an analysis of the same language made by Bernhard Wälchli who was familiar with it. The results show that the infrequent repetitive and restitutive expressions were overlooked in the analysis with less prior knowledge, but that the knowledge gap does not pose any significant problems for the analysis as a whole. Since it

is groups of expressions that are investigated, a rare expression which occurs one or two times does not affect the results, and does not challenge the validity of the hierarchy which is based on groups of examples and not isolated ones.

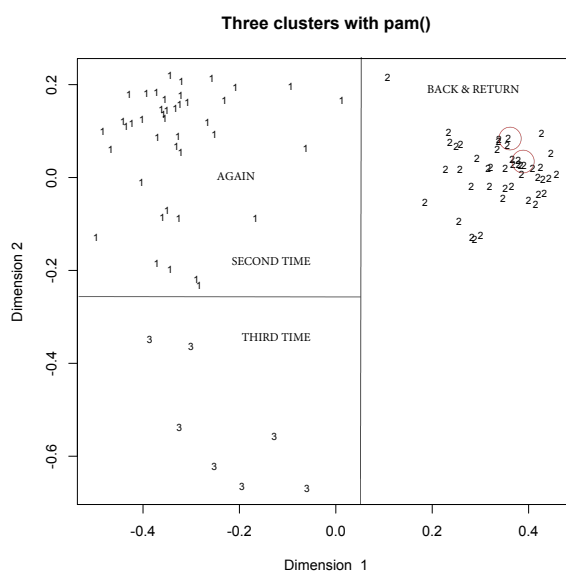
Another problem associated with this method is that it is possible that I only found part of a more complex expression due to the available information for a particular language. For example, if I was not familiar with French, it is possible that I would not have chosen to analyze the prefix *re-* ‘again’ as an expression by itself, but instead the whole verb such as *retourner* ‘return’ or *rentrer* ‘go home, return’. This might have affected the delimitation pattern of French as these two verbs might only occur in CLUSTER 2, but not the validity of the TURN-hierarchy itself. A verb lexicalized with *re-* still fits on the hierarchy, but might occur in fewer clusters than the prefix.

Similarly, the English contexts in the corpus that were chosen also affect the end result. Out of the 94 contexts, two containing BACK were later deemed less suitable due to them being metaphors, as shown in example (27). However, a closer look at the database and probabilistic semantic maps reveal that these two contexts do not behave differently from other contexts containing BACK when it comes to where they occur on the map in figure 26 and what expressions the sample languages use.

(27) Examples of metaphorical *back* in the Lexham English Bible

- a. To whom our fathers were not willing to become obedient , but rejected him and turned *back* in their hearts to Egypt. (44007039)
- b. My brothers, if anyone among you should wander away from the truth and someone turns him *back* [...] (59005019)

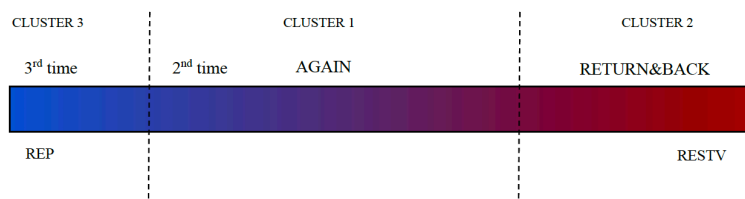
Figure 26: Positions of metaphorical *back* in the three clusters



6 Conclusions

The most important finding of this study is that the semantic domain of repetition and restitution is a continuous scale. The scale is illustrated in figure 27, named the TURN-hierarchy. The TURN-hierarchy is comprised of repetitive expressions like **THIRD TIME** to the far left, or the repetitive side. In the intermediate section, expressions which are possibly ambiguous, like **AGAIN** and **SECOND TIME**, can be found. To the far right are the restitutive expressions **RETURN**, **BACK**. The hierarchy is applicable to all languages in the sample, which delimit it in different ways.

Figure 27: The TURN-hierarchy



The results show that repetitive and restitutive meaning is a valid difference in a majority of the sample languages and that the distinction between repetitive and restitutive meaning is ambiguous in about a third of the sample. A general tendency is that all languages seem to have an exclusively repetitive expression, and that the restitutive expressions are often ambiguous. Thus, some languages have an oppositional contrast between restitutive and repetitive meaning, and some do not and the contrast is more ambiguous. Regardless, the TURN-hierarchy holds for all languages in the sample. I thus propose the following universal:

- (28) The Universal of Repetitive Privilege
Languages have at least one exclusively repetitive expression

Repetitive and restitutive meanings form a scale as illustrated in the TURN-hierarchy in figure 27. The TURN-hierarchy can be translated into a typological classification based on how language specific expressions delimit the domain. These two methods, a hierarchy or prominence scale and classification, are both common in typological research. A prominence scale is broadly applicable and often constructed when studying a more general functional domain. Conversely, a classification is often constructed when working with a smaller domain, such as the domain under investigation in the present study. By using both methods it becomes apparent that the scale or hierarchy is the superior method, even for a relatively restricted domain such as this, since it is applicable to all language in the sample while the classification is not. This shows that a smaller domain such as that of repetition and restitution benefits from a method which creates an widely applicable hierarchy and, by extension, that it would be interesting to apply the hierarchical method to other smaller functional domains as well.

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Appendix A: the sample

The sample is further described in section 3.1.

Table 12: The sample

Language	ISO	Area	Affiliation	Source
Aimol	aim	Eurasia	Sino-Tibetan, Tibeto-Burman	Grierson (1904)
Algonquin	alq	North America	Algic, Algonquian, Central, Ojibwa	Cuoq (1890)
Batak Toba	bbc	SEA and Oceania	Austronesian, Polynesian, Sumatra	van der Tuuk (1971)
Cabécar	cjp	South America	Chibchan, Talamanca	Margery Peña (1989)
Central Alaskan Yupik	esu	North America	Eskimo-Aleut, Eskimo, Yupik	Jacobson (1995)
Central Mnong	cmo	SEA and Oceania	Austro-Asiatic, Mon-Khmer	Bequette (2013)
Central-Eastern Niger Fulfulde	fuq	Africa	Niger-Congo, Atlantic-Congo, Atlantic, Northern	Baumbach (1997); Sow (1971)
Eastern Lowland Kenyah	whk	SEA and Oceania	Austronesian, Polynesian, Northwest	Smith (2017)
French	fra	Eurasia	Indo-European, Italic, Romance	
Galo	adl	Eurasia	Sino-Tibetan, Tibeto-Burman	Post (2007)
German	deu	Eurasia	Indo-European, Germanic	
Gwich'in	gwi	North America	Na-Dene, Nuclear Na-Dene, Athapaskan-Eyak	MacDonald (1911)
Hausa	hau	Africa	Afro-Asiatic, Chadic	
Hixkaryana	hix	South America	Carib, Southern, Southern Guiana	Derbyshire (1979)
Huallaga Huánuco Quechua	qub	South America	Quechuan	Weber (1989)
Huehuetla Tepehua	tee	North America	Totonacan, Tepehua	Kung (2007)
Jola-Fonyi	dyo	Africa	Niger-Congo, Atlantic-Congo, Atlantic, Northern	Sapir (1965)
Kara-Kalpak	kaa	Eurasia	Altaic, Turkic	Wurm (1951)
Kotiria	gvc	South America	Tucanoan, Eastern Tucanoan	Stenzel (2004)
Madak	mmx	PNG and Australia	Austronesian, Polynesian, Oceanic	Lee (1989)
Mbuko	mqb	Africa	Afro-Asiatic, Chadic	Gravina et al. (2003)
Moskona	mtj	PNG and Australia	East Bird's Head, Meax	Gravelle (2010)
Nalca	nlc	PNG and Australia	Trans-New Guinea, Mek	Svärd (2013)

Continued on next page

Table 12 – continued from previous page

Language	ISO	Area	Affiliation	Source
Nangnda	bjv	Africa	Nilo-Saharan, Central Sudanic	Djarangar (1989), Adami et al. (1981)
Owa	stn	SEA and Oceania	Austronesian, Malayo-Polynesian, Oceanic	Mellow (2014)
Patep	ptp	PNG and Australia	Austronesian, Malayo-Polynesian, Oceanic	Lauck et al. (1976)
Sindhi	snd	Eurasia	Indo-European, Indo-Aryan	
Somali	som	Africa	Afro-Asiatic, Cushitic	
Southern Jinghpaw	kac	SEA and Oceania	Sino-Tibetan, Tibeto-Burman	Dai (1999)
Standard Arabic	arb	Africa	Afro-Asiatic, Semitic	
Tucano	tuo	South America	Tucanoan, Eastern Tucanoan, Northern	Sorensen (1969)
Tzeltal	tzh	North America	Mayan, Cholan-Tzeltalan	Berlin and Kaufman (1962)
Warlpiri	wbp	PNG and Australia	Australian, Pama-Nyungan	Legate (2002)
Zulu	zul	Africa	Niger-Congo, Atlantic-Congo, Narrow Bantu	

Appendix B: The encoding of repetition and restitution in the sample

The encoding of repetitive and restitutive meaning in the sample is presented in section 4.2.

Table 13: The encoding of repetition and restitution in the sample

REP	RESTV	Ambiguous	Language
+	+	-	Batak Toba
+	+	-	Central-Eastern Niger Fulfulde
+	+	-	Galo
+	+	-	Hausa
+	+	-	Huallaga Huánuco Quechua
+	+	-	Kara-Kalpak
+	+	-	Madak
+	+	-	Mbukko
+	+	-	Somali
+	+	-	Standard Arabic
+	+	+	Aimol
+	+	+	Central Alaskan Yupik
+	+	+	Central Mnong
+	+	+	German
+	+	+	Kotiria
+	+	+	Moskona
+	+	+	Nangnda
+	+	+	Patep
+	+	+	Sindhi
+	+	+	Tzeltal
+	+	+	Zulu
+	-	+	Algonquin
+	-	+	Cabecar
+	-	+	Eastern Lowland Kenyah
+	-	+	French
+	-	+	Gwich'in
+	-	+	Hixkaryana
+	-	+	Huehuetle Tepehua
+	-	+	Jola-Fonyi
+	-	+	Nalca
+	-	+	Owa
+	-	+	Southern Jinghpaw
+	-	+	Tucano
+	-	+	Warlpiri

Appendix C: Probabilistic semantic maps

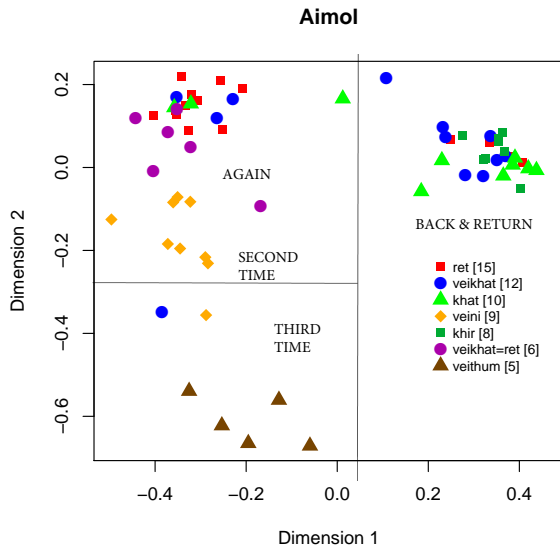


Figure 28: Aimol [aim], Sino-Tibetan

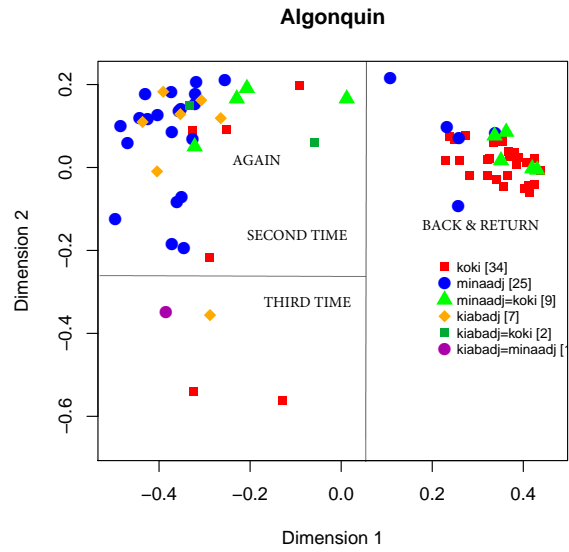


Figure 29: Algonquin [alq], Algic

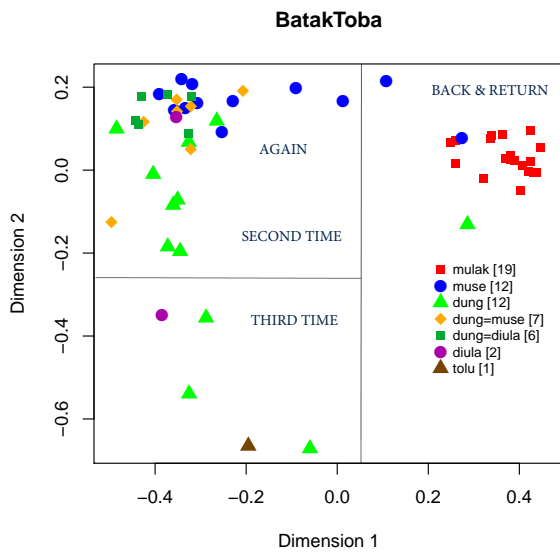


Figure 30: Batak-Toba [bbc], Austronesian

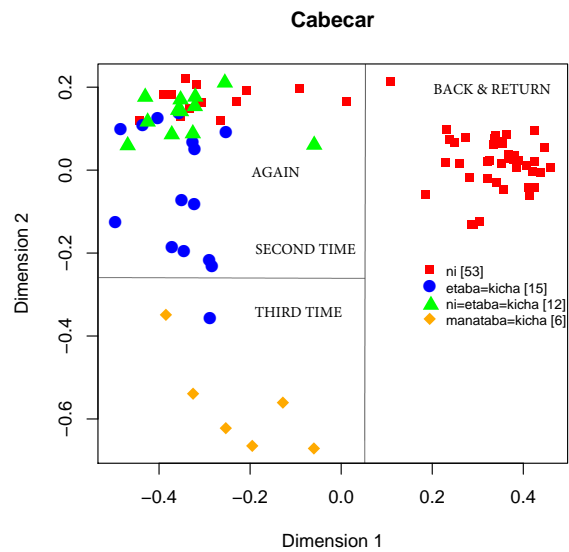


Figure 31: Cabecar [cjp], Chibchan

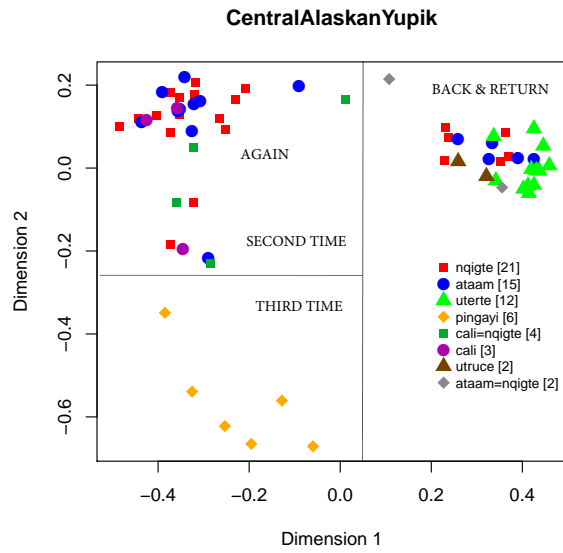


Figure 32: Alaskan Yupik [esu], Eskimo-Aleut

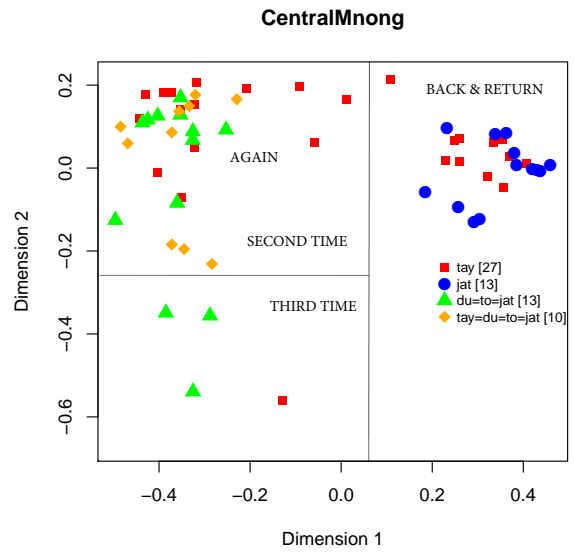


Figure 33: Central Mnong [cmo], Austro-Asiatic

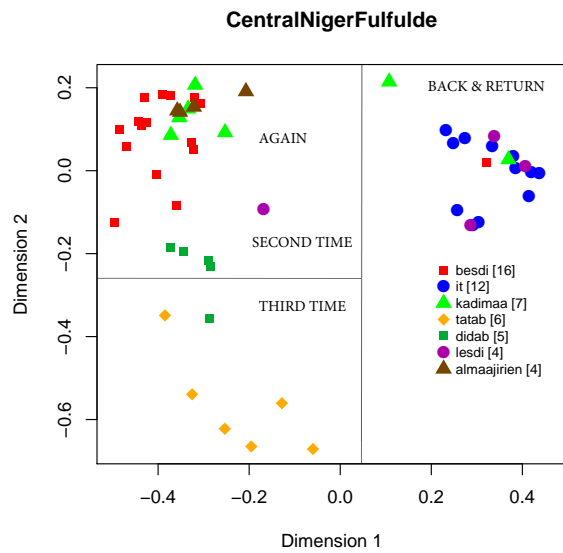


Figure 34: Niger Fulfulde [fuq], Niger-Congo

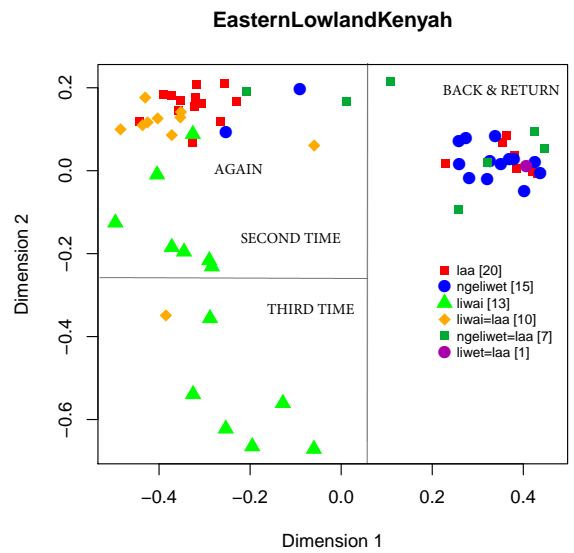


Figure 35: Lowland Kenyah [whk], Austronesian

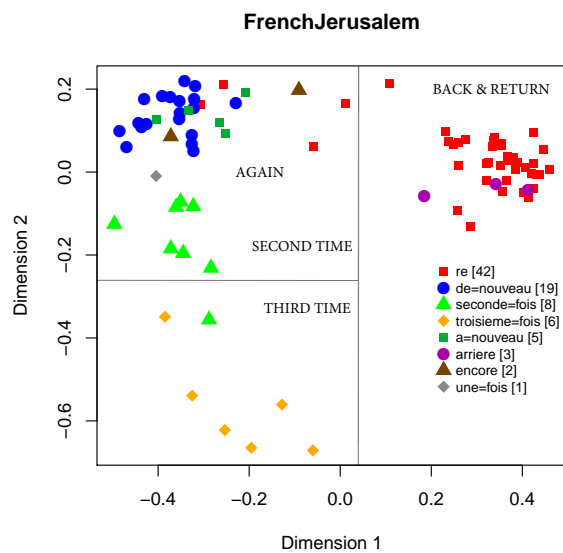


Figure 36: French [fra], Romance

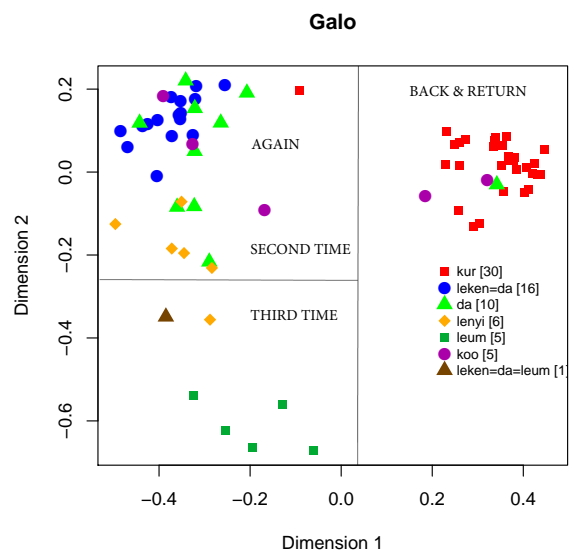


Figure 37: Galo [adl], Sino-Tibetan

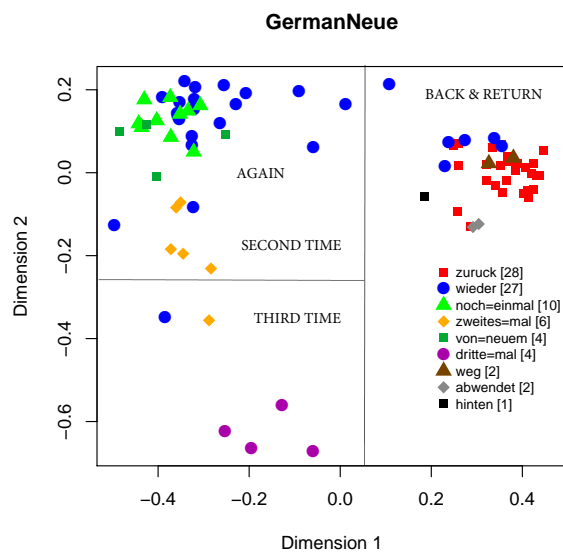


Figure 38: German [deu], Germanic

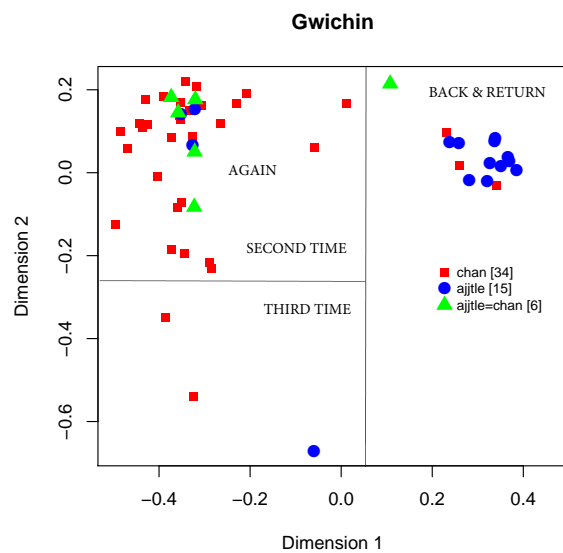


Figure 39: Gwich'in [gwi], Na-Dene

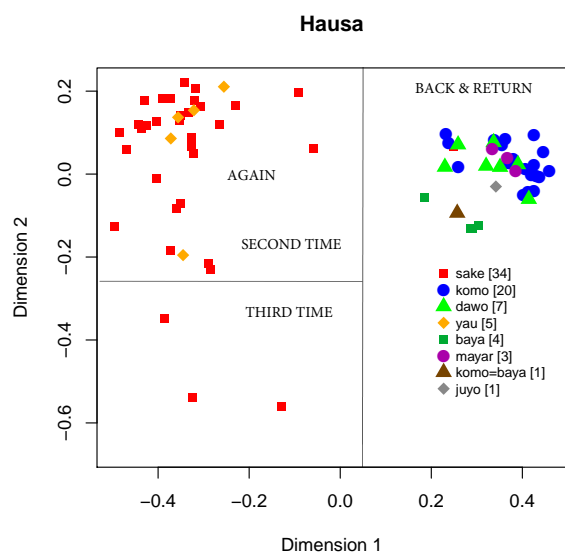


Figure 40: Hausa [hau], Afro-Asiatic

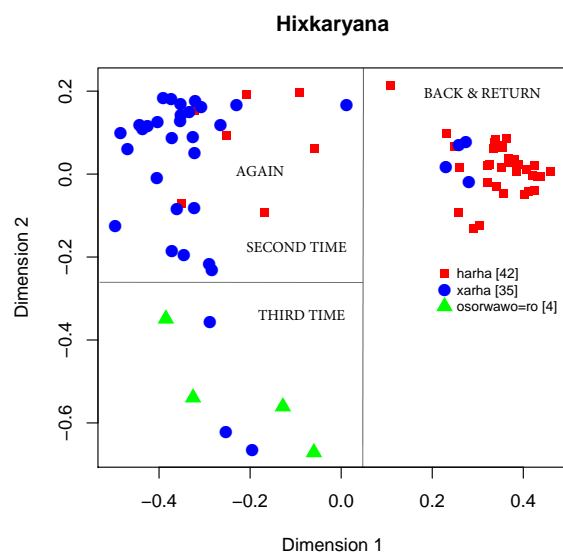


Figure 41: Hixkaryána [hix], Carib

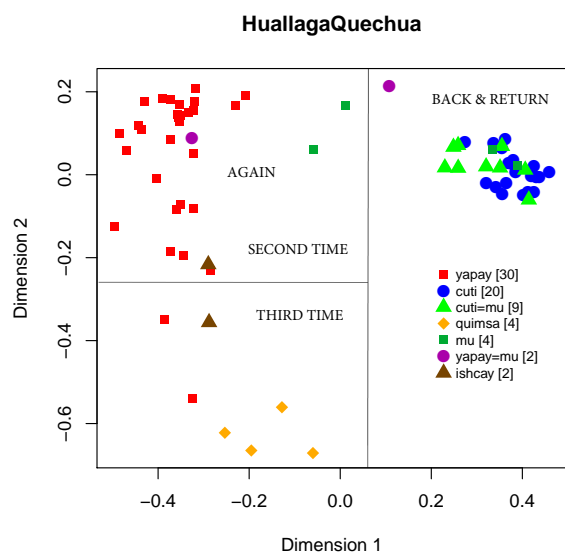


Figure 42: Huallaga Huánuco Quechua [qub],
Quechuan

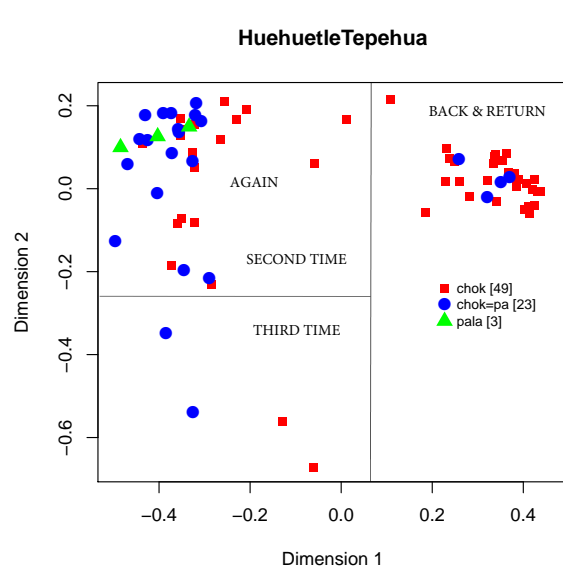


Figure 43: Huehuetla Tepehua [tee], Totonacan

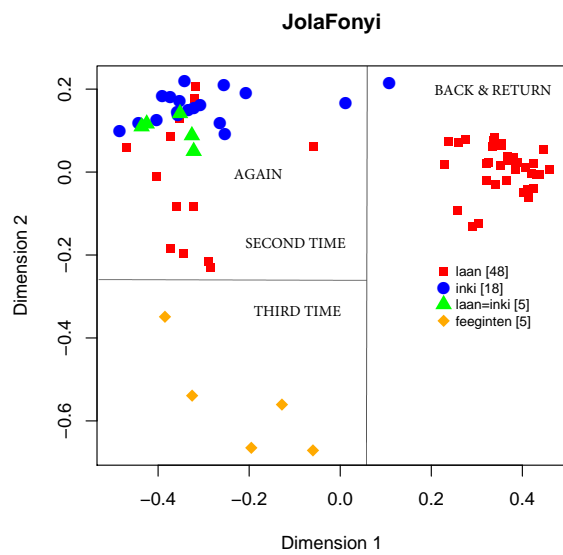


Figure 44: Jola-Fonyi [dyo], Niger-Congo

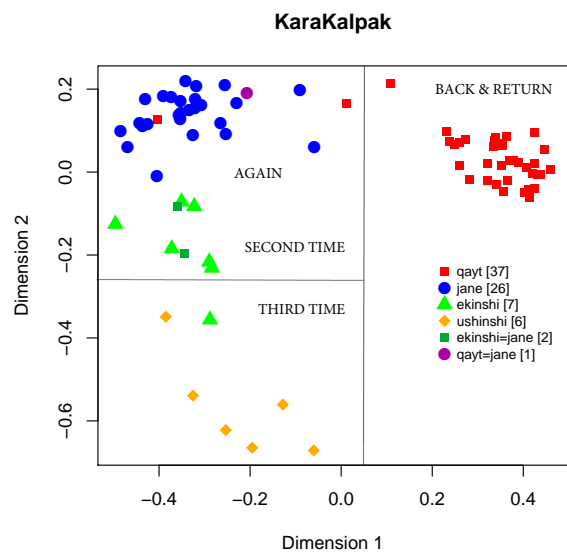


Figure 45: Kara-Kalpak [kaa], Altaic

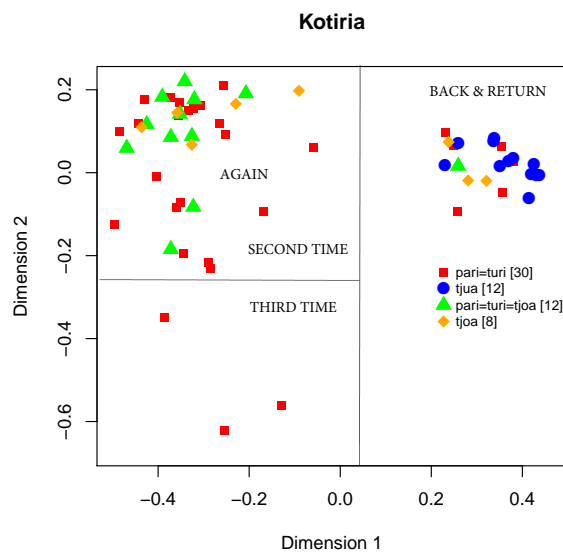


Figure 46: Kotiria [gvc], Tucanoan

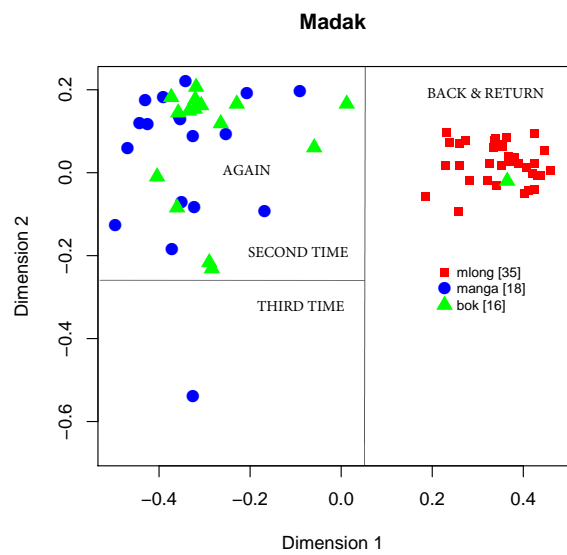


Figure 47: Madak [mmx], Austronesian

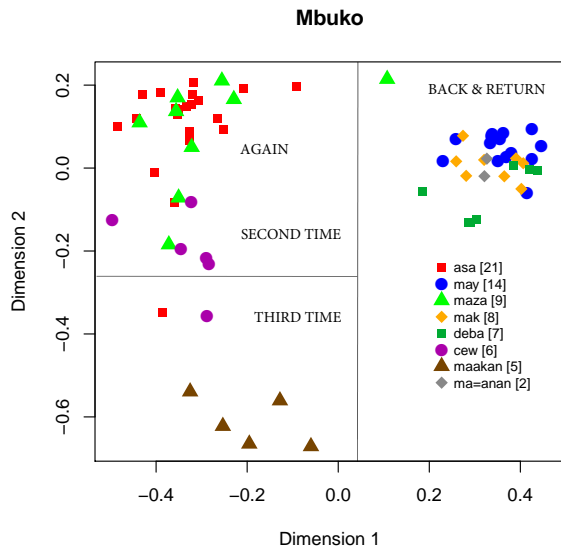


Figure 48: Mbuko [mqb], Afro-Asiatic

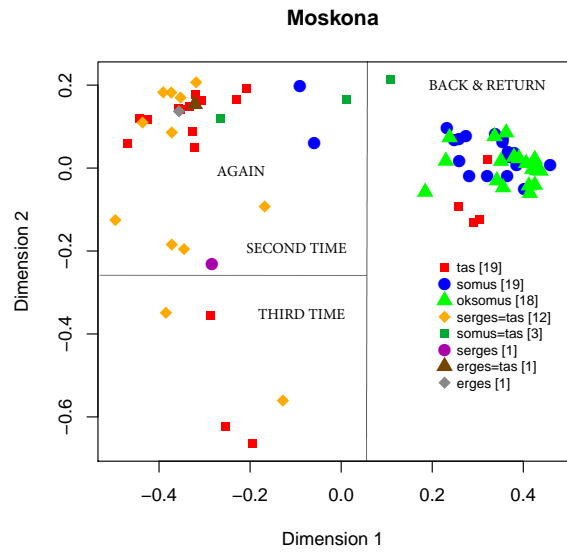


Figure 49: Moskona [mtj], East Bird's Head

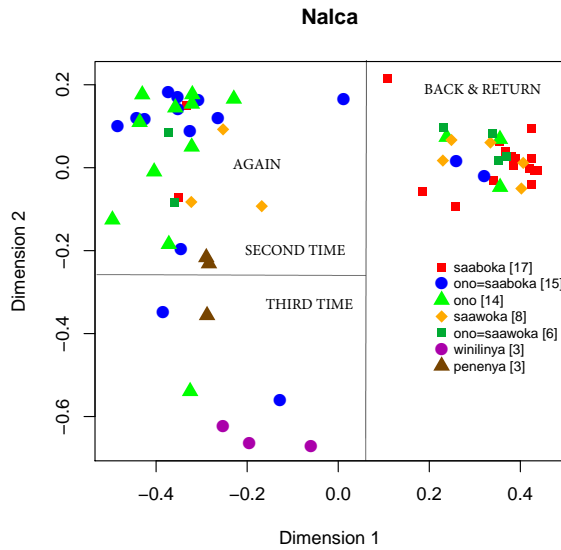


Figure 50: Nalca [nlc], Trans-New Guinea

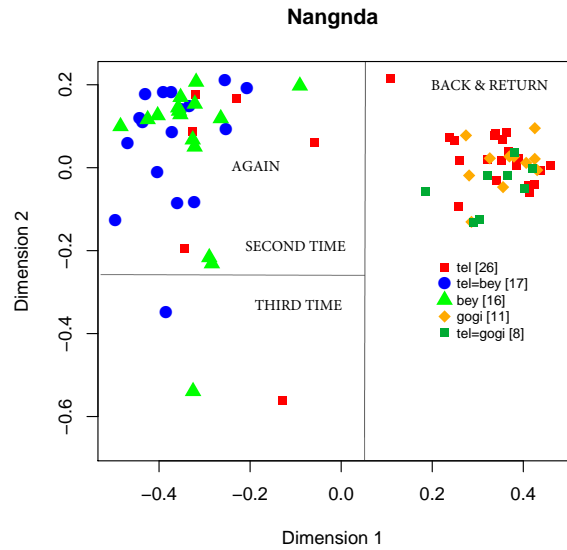


Figure 51: Nangnda [bjv], Nilo-Saharan

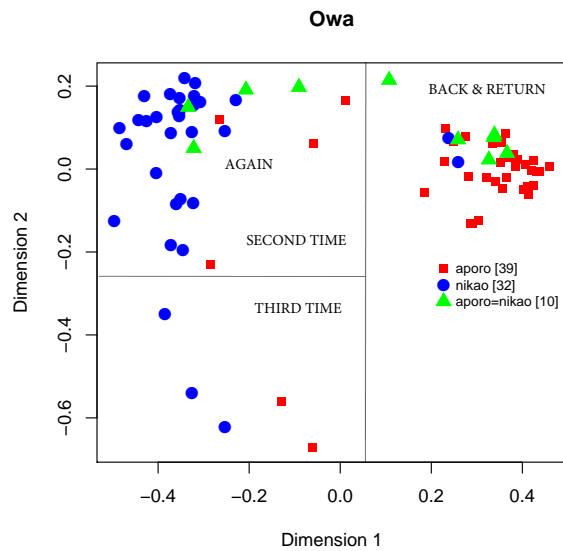


Figure 52: Owa [stn], Austronesian

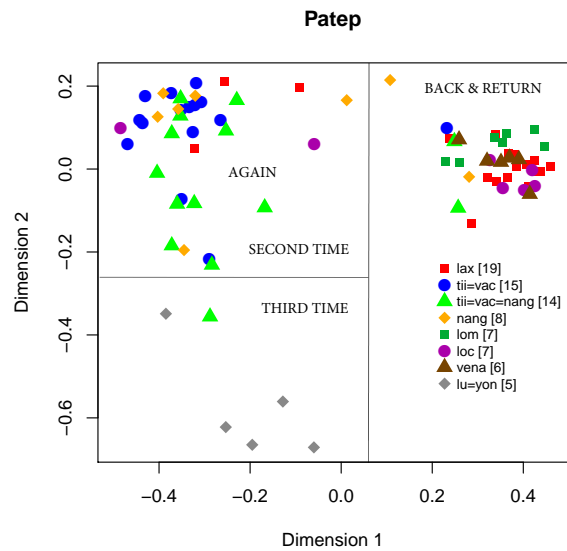


Figure 53: Patep [ptp], Austronesian

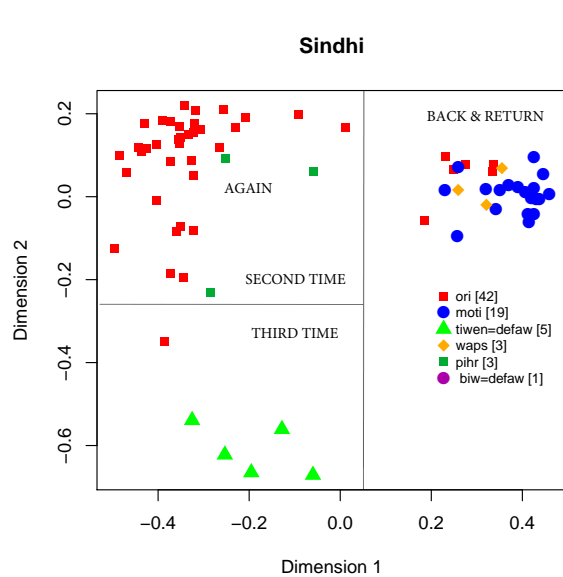


Figure 54: Sindhi [snd], Indo-Aryan

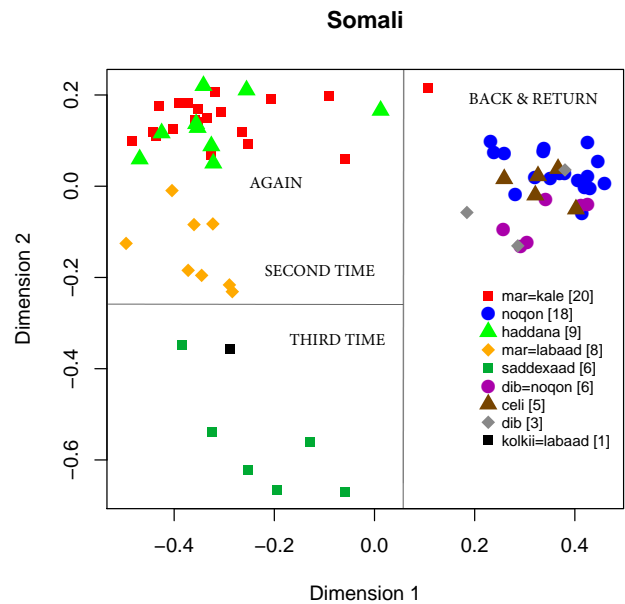


Figure 55: Somali [som], Afro-Asiatic

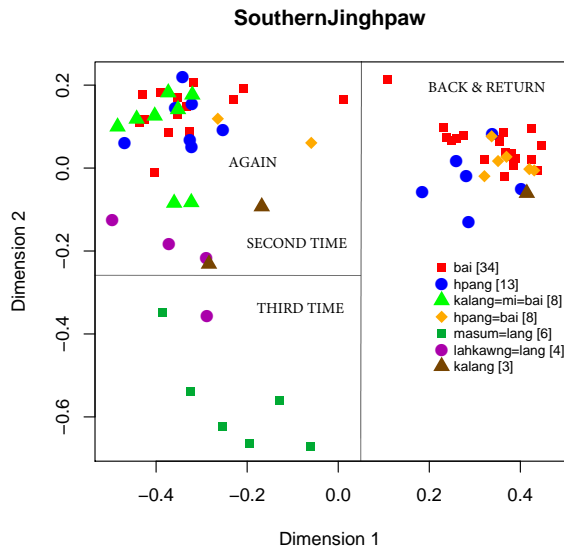


Figure 56: Southern Jinghpaw [kac], Sino-Tibetan

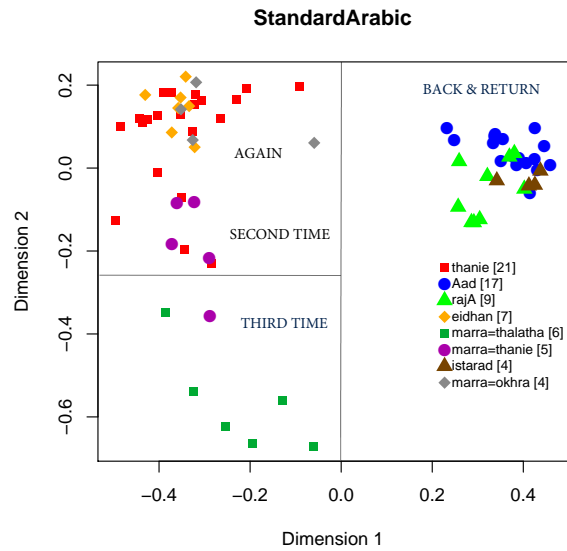


Figure 57: Standard Arabic [arb], Afro-Asiatic

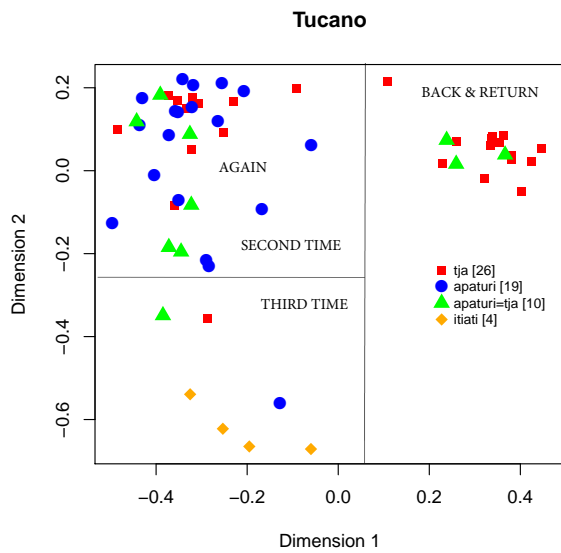


Figure 58: Tucano [tuo], Tucanoan

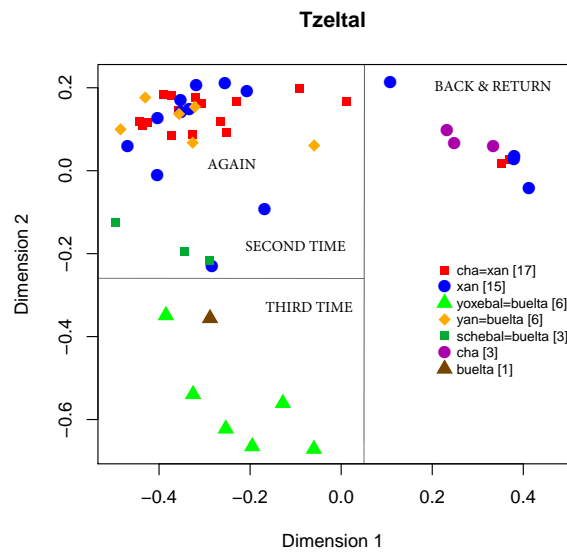


Figure 59: Tzeltal [tzh], Mayan

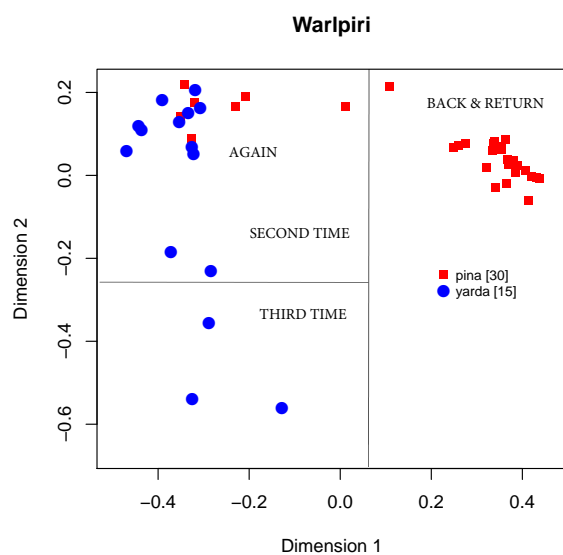


Figure 60: Warlpiri [wbp], Australian

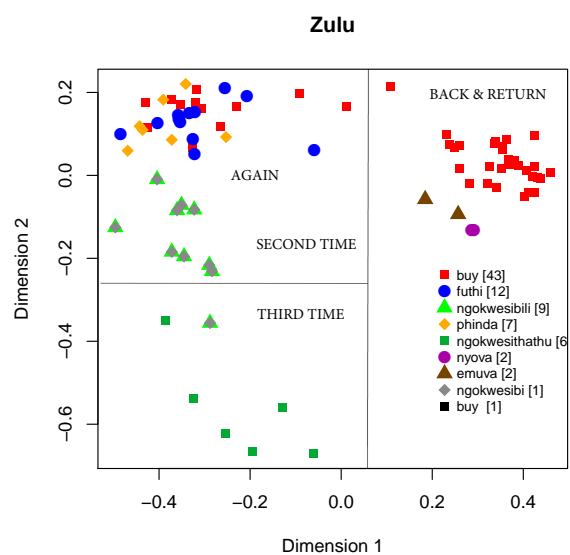


Figure 61: Zulu [zul], Niger-Congo

Appendix D: The English contexts from the Lexham English Bible

Table 14: Verses from the Lexham English Bible

Verse number	Context
47003001	Are we beginning to commend ourselves again? Or do we, like some, need letters of recommendation to you or from you?
43010017	Because of this the Father loves me, because I lay down my life so that I may take possession of it again.
43004013	Jesus answered and said to her, "Everyone who drinks of this water will be thirsty again.
41002013	And he went out again beside the sea, and all the crowd was coming to him, and he began to teach them.
40026072	And again he denied it with an oath, "I do not know the man!"
48004009a	But now, because you have come to know God, or rather have come to be known by God, how can you turn back again to the weak and miserable elemental spirits?
48004009b	Do you want to be enslaved to them all over again?
47005012	We are not commending ourselves to you again, but are giving you an opportunity to boast about us, in order that you may have an answer for those who boast in appearance and not in heart.
43020026	And after eight days his disciples were again inside, and Thomas with them. Although the doors had been shut, Jesus came and stood in their midst and said, "Peace to you."
43020021	So Jesus said to them again, "Peace to you. As the Father has sent me, I also send you."
43018027	So Peter denied it again, and immediately a rooster crowed.
43016022	So you also are experiencing sorrow now, but I will see you again, and your hearts will rejoice, and no one will take away your joy from you.
43012028	Father, glorify your name! "Then a voice came from heaven, "I have both glorified it, and I will glorify it again."
43009027	He replied to them, "I told you already and you did not listen! Why do you want to hear it again? You do not want to become his disciples also, do you?"
41014070a	But he denied it again.
41014070b	And after a little while, again the bystanders began to say to Peter, "You really are one of them, because you also are a Galilean!"
41010001a	And from there he set out and came to the region of Judea and the other side of the Jordan, and again crowds came together to him.
41010001b	And again, as he was accustomed to do, he began to teach them.
40027050	And Jesus cried out again with a loud voice and gave up his spirit.
40026043	And he came again and found them sleeping, for they could not keep their eyes open.
59005018	And he prayed again, and the sky gave rain and the earth produced its fruit.
50004004	Rejoice in the Lord always; again I say, rejoice.
50001026	so that what you can be proud of may increase in Christ Jesus because of me through my return again to you.
48004019	My children, for whom I am having birth pains again, until Christ is formed in you!
Continued on next page	

Table 14 – continued from previous page

Verse number	Context
43021001	After these things Jesus revealed himself again to the disciples by the Sea of Tiberias. Now he revealed himself in this way:
43018007	Then he asked them again, “Who are you looking for?” And they said, “Jesus the Nazarene.”
43010039	So they were seeking again to seize him, and he departed out of their hand.
43010031	The Jews picked up stones again so that they could stone him.
43010018	No one takes it from me, but I lay it down voluntarily. I have authority to lay it down, and I have authority to take possession of it again. This commandment I received from my Father.”
41010024	And the disciples were astounded at his words. But Jesus answered and said to them again, “Children, how difficult it is to enter into the kingdom of God!
41008025	Then he placed his hands on his eyes again, and he opened his eyes and was cured, and could see everything clearly.
40020005	So they went. And going out again about the sixth and ninth hour he did the same thing.
66010008	And the voice that I had heard from heaven was speaking with me again and saying, “Go, take the opened scroll in the hand of the angel who is standing on the sea and on the land.”
40002012	And being warned in a dream not to return to Herod, they went back to their own country by another route.
40024018	and the one who is in the field must not turn back to pick up his cloak.
44007039	to whom our fathers were not willing to become obedient, but rejected him and turned back in their hearts to Egypt,
42017015	But one of them, when he saw that he was healed, turned back, praising God with a loud voice.
42017031	On that day, whoever is on the housetop and his goods are in the house must not come down to take them away. And likewise the one who is in the field must not turn back
41013016	and the one who is in the field must not turn back to pick up his cloak.
59005019	My brothers, if anyone among you should wander away from the truth and someone turns him back,
57001012	whom I have sent back to you himself, that is, my heart,
42023011	And Herod with his soldiers also treated him with contempt, and after mocking him and dressing him in glistening clothing, he sent him back to Pilate.
42023015	But neither did Herod, because he sent him back to us. And behold, nothing deserving death has been done by him.
41011003	And if anyone says to you, ‘Why are you doing this?’ say, ‘The Lord has need of it, and will send it here again at once.’”
42009042	And while he was still approaching, the demon threw him down and convulsed him. But Jesus rebuked the unclean spirit and healed the boy, and gave him back to his father.
42004020	And he rolled up the scroll and gave it back to the attendant and sat down. And the eyes of everyone in the synagogue were looking intently at him.
58011019	having reasoned that God was able even to raise him from the dead, from which he received him back also as a symbol.
58011035	Women received back their dead by resurrection. But others were tortured, not accepting release, in order that they might gain a better resurrection.
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Table 14 – continued from previous page

Verse number	Context
42015027	And he said to him, ‘Your brother has come, and your father has killed the fattened calf because he has gotten him back healthy.’
42006034	And if you lend to those from whom you expect to receive back, what kind of credit is that to you ? Even sinners lend to sinners, so that they may get back an equal amount!
40025027	Then you ought to have deposited my money with the bankers, and when I returned I would have gotten back what was mine with interest!
57001015	For perhaps because of this, he was separated from you for a time, in order that you might have him back forever,
43018006	So when he said to them, “I am he,” they drew back and fell to the ground.
43006066	For this reason many of his disciples drew back and were not walking with him any longer.
40026052	Then Jesus said to him, “Put your sword back into its place! For all who take up the sword will die by the sword.
58010038	But my righteous one will live by faith, and if he shrinks back, my soul is not well pleased with him.”
58010039	But we are not among those who shrink back to destruction, but among those who have faith to the preservation of our souls.
42006030	Give to everyone who asks you, and from the one who takes away your things, do not ask for them back.
42009062	But Jesus said to him, “No one who puts his hand on the plow and looks back is fit for the kingdom of God!”
44015016	‘After these things I will return and build up again the tent of David that has fallen, and the parts of it that had been torn down I will build up again and will restore it,
42019012	Therefore he said, “A certain nobleman traveled to a distant country to receive for himself a kingdom and to return.
44020003	and stayed three months. Because a plot was made against him by the Jews as he was about to set sail for Syria, he came to a decision to return through Macedonia.
42011024	“Whenever an unclean spirit has gone out of a person, it travels through waterless places searching for rest, and does not find it. Then it says, ‘I will return to my house from which I came out.’
42010006	And if a son of peace is there, your peace will rest on him. But if not, it will return to you.
40010013	And if the house is worthy, let your peace come upon it, but if it is not worthy, let your peace return to you.
58011015	And if they had been remembering that land from which they had gone out, they would have had opportunity to return.
42008039	“Return to your home and tell all that God has done for you. ”And he went away, proclaiming throughout the whole town all that Jesus had done for him.
40012044	Then it says, ‘I will return to my house from which I came out. ’And when it arrives it finds the house unoccupied and swept and put in order.
40002012	And being warned in a dream not to return to Herod, they went back to their own country by another route.
44013034	But that he has raised him from the dead, no more going to return to decay, he has spoken in this way: ‘I will give you the reliable divine decrees of David.’
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Table 14 – continued from previous page

Verse number	Context
44018021	but saying farewell and telling them, “I will return to you again if God wills, ”he set sail from Ephesus.
42012036	And you, be like people who are waiting for their master when he returns from the wedding feast, so that when he comes back and knocks, they can open the door for him immediately.
42014012	And he also said to the one who had invited him, “When you give a dinner or a banquet, do not invite your friends or your brothers or your relatives or wealthy neighbors, lest they also invite you in return, and repayment come to you.
42010035	And on the next day, he took out and gave two denarii to the innkeeper, and said, “Take care of him, and whatever you spend in addition, I will repay to you when I return.
45009009	For the statement of the promise is this: “At this time I will return and Sarah will have a son.”
60002023	who when he was reviled, did not revile in return; when suffering, he did not threaten, but entrusted himself to the one who judges justly,
44015036	And after some days, Paul said to Barnabas, “Come then, let us return and visit the brothers in every town in which we proclaimed the word of the Lord, to see how they are doing.”
40026044	And leaving them again, he went away and prayed for the third time, saying the same thing again.
41014041	And he came the third time and said to them,“ Are you still sleeping and resting? It is enough! The hour has come. Behold, the Son of Man is being betrayed into the hands of sinners.
42023022	So he said to them a third time, “Why? What wrong has this man done? I found no basis for an accusation deserving death in him. Therefore I will punish him and release him.”
43021014	This was now the third time Jesus was revealed to the disciples after he had been raised from the dead.
47012014	Behold, this third time I am ready to come to you, and I will not be a burden to you. For I am not seeking your possessions, but you. For children are not obligated to save up for their parents, but parents for their children.
47013001	This is the third time I am coming to you. By the testimony of two or three witnesses every word will be established.
43021016	He said to him again a second time, “Simon son of John, do you love me? ”He said to him, “Yes, Lord, you know that I love you. ”He said to him, “Shepherd my sheep!”
40026042	Again for the second time he went away and prayed, saying, “My Father, if this cannot pass unless I drink it, your will must be done.”
41014072	And immediately a rooster crowed for the second time. And Peter remembered the statement, how Jesus had said to him, “Before the rooster crows twice, you will deny me three times, ”and throwing himself down, he began to weep.
43003004	Nicodemus said to him, “How can a man be born when he is an old man? He is not able to enter into his mother’s womb for the second time and be born, can he?”
43009024	So they summoned the man who had been blind for the second time and said to him, “Give glory to God! We know that this man is a sinner!”

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Table 14 – continued from previous page

Verse number	Context
44010015	And the voice came again to him for the second time: “The things which God has made clean, you must not consider unclean!”
44011009	But the voice replied from heaven for the second time, “The things which God has made clean, you must not consider unclean!”
47013002	I have already said when I was present the second time, and although I am absent now I also say in advance to those who sinned previously and to all the rest, that if I come again I will not spare anyone,
58009028	thus also Christ, having been offered once in order to bear the sins of many, will appear for the second time without reference to sin to those who eagerly await him for salvation.
65001005	Now I want to remind you, although you know everything once and for all, that the Lord, having saved the people out of the land of Egypt, the second time destroyed those who did not believe.
66019003	And a second time they said, “Hallelujah!” And her smoke goes up forever and ever.

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