

What is ‘contact-induced grammaticalization’? Examples from Mayan and Mixe-Zoquean languages¹

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1. Introduction

It has long been known that not only Saussurean signs (words, affixes) are susceptible to interlingual transfer, but also structural relations holding between such signs, e.g. word order rules (cf. Weinreich 1953, Heath 1978, Thomason & Kaufman 1988, Ross 1999, among many others). In the first case, linguistic ‘fabric’ (Grant 2002, this volume) or ‘matter’ (Matras & Sakel 2007) is transferred from one language to another, while the second case involves the reproduction of ‘patterns’ without any linguistic substance being copied. Such ‘pattern replication’ (Matras & Sakel 2007) has long been familiar from the study of lexical borrowing (e.g. Haugen 1950). For instance, loan translations (or ‘calques’ < Fr. *calque* ‘copy’) such as Fr. *presqu’île* ‘peninsula’ (cf. Latin *paen[e]-insula* ‘almost-island’) can be regarded as the transfer of a lexical-morphological rule.² While neither part of the compound has been ‘physically’ copied, the target language (here, French) has “imported a particular structural pattern, viz. the combination of the two constituents into a compound expression with a new meaning of its own not derivable by a simple addition of the two parts” (Haugen 1950: 214).

A more recent insight of contact linguistics, prominently put on the agenda by Heine & Kuteva (2003, 2005), is that language contact may not only lead to transfer or replication of matter or patterns, it can also trigger internal changes in a language under contact influence. The term ‘contact-induced grammaticalization’ is now widely used for this process. Contact-induced grammaticalization is intimately related to, and in fact difficult to distinguish from, pattern replication. For example, the ‘hot-news-perfect’ of Irish English (*He’s after going*) seems to be modeled on the

corresponding Irish construction (cf. Section 2.2). In addition to pattern transfer, a process of grammaticalization has taken place, e.g. in so far as the newly created tense ('hot-news-perfect') has been integrated into the TAM-system of Irish English. The grammaticalization of this category in Irish English was thus 'induced' by language contact with Irish.

While the existence of both 'pattern replication' and some type of 'contact-induced grammaticalization' seems to be widely assumed by now (as is witnessed by several contributions to this volume), the exact mechanisms underlying these processes are hardly accessible to empirical observation, so that we can only speculate on them. The most prominent models aiming to capture the interplay of language contact and grammaticalization are probably those proposed by Heine & Kuteva (2003, 2005) and Matras & Sakel (2007). Even though there is considerable overlap and compatibility between these frameworks, there are also important differences. One central issue is the question of whether grammaticalization can only be *triggered* by language contact, while itself being basically language-internal, or whether the process itself is also susceptible to transfer.

Unlike Matras & Sakel (2007), who do not assume a direct transfer of grammaticalization processes, Heine & Kuteva (2003, 2005) postulate a process of 'replica grammaticalization', where grammaticalization is itself the object of transfer. This assumption has non-trivial and probably controversial consequences not only for our understanding of language change, but also for the type of linguistic information that is assumed to be accessible to speakers. In particular, 'replica grammaticalization' attributes a considerable amount of linguistic meta-knowledge to natural language users, including knowledge of diachronic developments.

In this contribution, we discuss the phenomenon of contact-induced grammaticalization with reference to a more general framework of language change as proposed by Croft (2000). We use data from Mayan and Mixe-Zoquean languages for illustration, with the objective of contributing to the growing pool of data relevant to contact-induced grammaticalization. We argue that contact-induced grammaticalization is most fruitfully approached by keeping the two principal mechanisms of

language change, i.e. ‘innovation’ and ‘propagation’, apart (cf. also Matras & Sakel 2007). In a situation of language contact, innovation often results from the ‘interlingual identification’ of objects from different languages. We distinguish two orthogonal types of interlingual identification, i.e. (i) interlingual identification of linguistic signs and (ii) interlingual identification of linguistic categories. Interlingual identification of signs or categories may lead to innovations which may subsequently extend their distribution and be conventionalized, i.e. undergo grammaticalization. We argue that interlingual identification of linguistic signs and subsequent ‘distributional assimilation’ typically, but not necessarily, works in the direction of ‘more grammatical’. Interlingual identification of linguistic categories and subsequent ‘category assimilation’ invariably introduces new grammatical categories into the target language. In this sense, contact-induced grammaticalization is understood as a process of distributional generalization and conventionalization following the contact-induced introduction of a new grammatical category or marker into the target language.

We start in Section 2 with a short review of Heine & Kuteva’s (2003, 2005) model of contact-induced grammaticalization. In Section 3, we present our own view, according to which contact-induced grammaticalization is a consequence of the interlingual identification of signs or categories while not itself being the object of transfer. Sections 4 and 5 discuss instances of structural convergence in Mayan and Mixe-Zoquean languages which qualify as candidates for contact-induced grammaticalization, with Section 4 giving some background information and the data, and Section 5 providing an analysis of the data in terms of the model presented in Section 3. Section 6 contains a few concluding remarks.

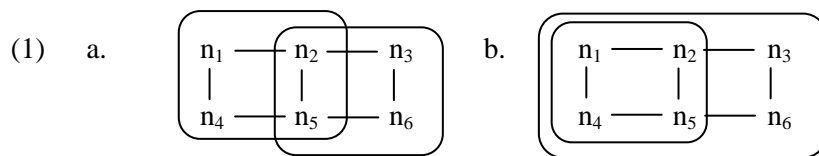
2. Grammatical replication according to Heine & Kuteva

2.1. Polysemy copying and distributional assimilation

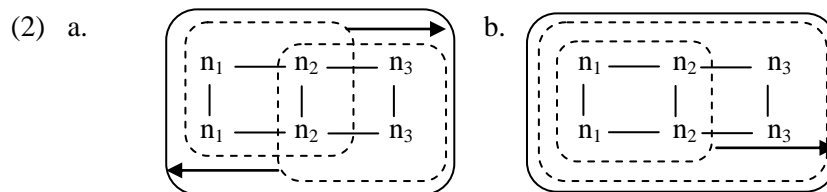
One of the most basic processes in language contact, traditionally regarded as a type of interference (cf. Weinreich 1953), is a change in the distribution or meaning of a linguistic sign which results from the interlingual identification of that sign with an element from some contact language. It can be illustrated with an example discussed by Heine & Kuteva (2003, 2005). As is well known, many European languages use *wh*-pronouns as relativizers (cf. Haspelmath 1998). This type of polysemy has extended its territory not only to the more ‘peripheral’ languages of the European *sprachbund* (cf. Haspelmath 2001), but also to non-European languages that have been in contact with European ones (e.g. Tariana/North Arawak under the influence of Portuguese; cf. Aikhenvald 2002: 183, Heine & Kuteva 2005: 3). What has apparently happened in these cases is that linguistic signs from different languages have been equated with respect to their distribution or meaning, i.e. they have been interlingually identified (Weinreich 1953: 7-8, 32; Heine & Kuteva 2003: 531; cf. also Matras & Sakel 2007). As a consequence, one or both of the signs may change their range of meaning, adopting part of the meaning covered by the sign from the contact language, or perhaps losing some of their original uses. Heine & Kuteva (2003, 2005) speak of ‘polysemy copying’ in such cases (cf. Heine & Kuteva 2003: 555-561, 2005: 100-103). We will call this process ‘distributional assimilation’. Distributional assimilation is basically equivalent to Heine & Kuteva’s (2003, 2005) ‘polysemy copying’ but differs from the latter process in that it may imply changes in both of the languages involved, while the notion ‘copying’ suggests asymmetrical transfer.³

Distributional assimilation can be illustrated using the semantic map model (cf. Haspelmath 1997, van der Auwera & Plungian 1998, van der Auwera & Gast 2010, among many others). At a first stage, two markers from different languages have overlapping functions, or one of the markers is more specific than the other. Using the semantic map model, these

situations can be represented as in (1), where the ‘conceptual nodes’ n_1 – n_6 stand for specific meanings or functions in a semantic map framework, and the rounded rectangles indicate the range of functions associated with two markers from different languages.



As a consequence of language contact, one or both of the markers may change their range of meanings. Accordingly, the functions of the two markers may be ‘assimilated’, i.e. their distributions may become more or less identical, as is illustrated in (2).



Distributional assimilation is, in principle, indifferent to the degree of grammaticalization exhibited by either linguistic sign involved. Still, it seems to work, in the majority of cases, in the direction of ‘more grammatical’. This may be due to the fact that translational equivalence is typically established at the more concrete end of the ‘semantic space’ covered by a linguistic sign. “The more concrete, lexical meaning of the word allows it to be identified with a corresponding word in the replica language. This word, in turn, then adopts the more abstract, grammatical

meaning also found in the model language” (Matras & Sakel 2007: 834, referring to Haase 1991 and Nau 1995). However, distributional extension in the direction of ‘less grammatical meanings’ seems to be attested as well (cf. Matras & Sakel 2007). Distributional assimilation thus appears to be empirically, but not inherently, associated with the acquisition of more, rather than less, grammatical meanings by the sign in the target language.

The process of distributional assimilation as described above is intuitively very simple and can certainly account for many cases of grammatical convergence. The example of question pronouns being used as relativizers in Tariana can easily be accommodated within this model. The (native) element of the target or ‘replica’ language – in the case of Tariana, the question word *kwana* – extends its territory on the semantic map, thus covering roughly the semantic space corresponding to the (more general/polysemous) Portuguese pronoun *que*.

2.2. Contact-induced grammaticalization

As a glance at the relevant literature shows, not all instances of grammatical convergence can be explained as easily as the Tariana example. Heine & Kuteva (2003, 2005) claim that more often than not, grammatical convergence is the result of contact-induced grammaticalization.⁴ They distinguish two types of contact-induced grammaticalization: ‘ordinary contact-induced grammaticalization’ and ‘replica grammaticalization’. ‘Ordinary contact-induced grammaticalization’ is described as follows (cf. Heine & Kuteva 2003: 533, 2005: 81):

- (3) Ordinary contact-induced grammaticalization
 - a. Speakers notice that in language **M** [the model language or source language] there is a grammatical category **Mx**.
 - b. They create an equivalent category **Rx** in language **R** [the replica language or target language] on the basis of the use patterns available in **R**.

- c. To this end, they draw on universal strategies of grammaticalization, using construction **Ry** in order to develop **Rx**.
- d. They grammaticalize **Ry** to **Rx**.

Heine & Kuteva (2003: 534) provide the example of the French-based creole Tayo, which has (supposedly) ‘replicated’ a dual on the model of the Melanesian contact languages Drubéa and Cèmuhi. The relevant marker – a pronominal suffix *de* – has been derived from a numeral meaning ‘two’ (cf. the numeral *deux* of the lexifier language French). Thus, a new value (‘dual’) for an existing category (‘number’) has been introduced into Tayo grammar under contact influence, but no pattern of polysemy associated with any specific marker has been transferred, since the ‘model languages’ (Drubéa, Cèmuhi) do not use a numeral ‘two’ as a dual marker (neither does French; in Drubéa and Cèmuhi no dual suffix can be isolated at all). The result of this process is convergence at the level of pronominal paradigm architecture: even though the relevant elements in the contact languages are formally completely different, their pronominal paradigms have cells with identical feature values.

The second type of contact-induced grammaticalization is called ‘replica grammaticalization’ by Heine & Kuteva (2003, 2005). In this case, the process of grammaticalization in the replica language is not only triggered by the contact language, the relevant languages also use the same underlying source meaning; i.e., rather than “draw[ing] on universal strategies of grammaticalization” (cf. (3c) above), the replica language adopts the same grammaticalization path that was also taken by the source language. ‘Replica grammaticalization’ is described as follows (Heine & Kuteva 2003: 539, 2005: 92):

- (4) Replica grammaticalization
 - a. Speakers notice that in language **M** there is a grammatical category **Mx**.
 - b. They create an equivalent category **Rx** in language **R**, using material available in **R**.

- c. To this end, they replicate a grammaticalization process they assume to have taken place in language **M**, using an analogical formula of the kind [**My** > **Mx**]: [**Ry** > **Rx**].
- d. They grammaticalize **Ry** to **Rx**.

As an example of this Heine & Kuteva (2005: 93) mention the ‘hot-news perfect’, which Irish English has adopted from Irish, using a construction of the form ‘*x* is after *V-ing*’ (e.g. *He’s after going*, corresponding to Irish *Tá sé [tar éis] imeacht*, lit. ‘is he after going’; cf. Greene 1979: 125, Pietsch 2005: 9). As in the Tayo case discussed above (‘ordinary contact-induced grammaticalization’), a new value (‘hot-news perfect’) for an existing category (‘tense-aspect’) is introduced into the target language; but unlike in the Tayo case, it is – presumably – not the *result* of the process that has been copied from one language to another, but the process itself: “[i]n this process [replica grammaticalization], it is not a grammatical concept but rather a grammaticalization process that is transferred from the model (M) to the replica language (R)” (Heine & Kuteva 2005: 92). The difference between the ‘transfer of (linguistic) objects’ and the ‘transfer of (historical) processes’ is shown in a simplified way in (5) (‘Mx’/‘Rx’ stands for ‘linguistic object *x* of model language *M*/replica language *R*’; cf. 3 and 4 above):

- (5) a. Transfer of linguistic objects b. Transfer of historical processes



Heine & Kuteva’s (2003, 2005) concept of replica grammaticalization entails a number of rather strong claims, some of which are at variance with contemporary models of language change (e.g. Croft 2000). In particular, it attributes a considerable degree of linguistic meta-knowledge to speakers, who are regarded as having not only an active knowledge of what is a grammatical category and what is not (“[s]peakers notice that in

language M there is a grammatical category Mx”) – as well as the will to create grammatical categories in one of their languages – but also an awareness of processes of grammaticalization (“they replicate a grammaticalization process they assume to have taken place in language M”). Even though Heine & Kuteva (2003, 2005) explicitly deny that speakers have historical knowledge about any of their languages, they do hold the view that such diachronic processes are in some way ‘accessible’ to speakers. With respect to the development of third person plural pronouns into polite second person singular pronouns in the Silesian dialect of Polish – presumably an instance of ‘replica grammaticalization’ under the influence of German – they remark:

Most likely, these Polish speakers were unfamiliar with the historical factors that were responsible for the grammaticalization in German; still, from the sociolinguistic, pragmatic, and grammatical information that was accessible to them they had enough information for replication. Obviously, replication did not mean that the Polish speakers repeated the history of the German *Sie*-construction; however, replication was not confined to simply copying a polysemy pattern [...] that they found in the model language but rather involved a process that was structurally not unlike the one speakers of the model language had undergone centuries earlier. (Heine & Kuteva 2005: 93)

The assumption that speakers at least have access to information about diachronic processes of change in the ‘model language’ seems to be necessary if one wants to maintain the idea of ‘replica grammaticalization’ as described in (4), though not in the case of ‘ordinary contact-induced grammaticalization’. In either case, it seems necessary to assume collective and cross-generational action since, as Heine & Kuteva (2003: 533) put it, language change “does not happen overnight and may involve several generations of speakers”.

We will try to show that there is way of modeling contact-induced grammaticalization that does not require the assumption of collective, cross-generational action targeting specific grammatical categories. In keeping with widely accepted models of language change (e.g. Croft 2000), we assume that contact-induced change, like any other type of language change, is best understood if the processes of ‘innovation’ and ‘propagation’ are kept apart (cf. also Matras & Sakel 2007). Innovations are introduced by individual speakers into the ‘utterance pool’ of a language. It is only as a result of propagation, a process largely determined by sociolinguistic factors, that innovations spread across a speech community. In our view, grammaticalization implies conventionalization and is thus a consequence of propagation. Still, individual innovations exhibit directionality with respect to their degree of grammaticalization. As pointed out in Section 2.1, the distributional assimilation of signs from different languages typically (though probably not necessarily) works in the direction of ‘more grammatical’. Moreover, the interlingual identification of linguistic categories necessarily implies grammaticalization, as a new value for an existing category is created.

We believe that the key to contact-induced grammaticalization lies in the process of ‘contact-induced innovation’, as this is basically what distinguishes contact-induced grammaticalization from endogenous grammaticalization. This is not to deny that the propagation and conventionalization of an innovation may be influenced – in particular, accelerated – by language contact, especially in diglossic societies. It seems to us, however, that contact-induced grammaticalization is most fruitfully approached from the perspective of “the syncretisation of processing operations in the two languages”, as Matras & Sakel (2007: 835) put it. In our view, it is the co-existence of different linguistic systems in individual speakers that acts as a driving force and catalyst of innovations specific to the type of linguistic change under discussion in this volume, and that is thus the most distinctive feature of contact-induced – as opposed to endogenous – grammaticalization.

3. Interlingual identification of signs and categories

We can distinguish two triggers of contact-induced innovation, (i) interlingual identification of linguistic signs and (ii) interlingual identification of linguistic categories. In the first case, two form-meaning pairings such as morphemes or constructions from different languages are equated in terms of their function or distribution. In the second case, domains of grammatical organization are interlingually identified, and specific types of ‘routines’ or category values are transferred from one language to another. The two processes are orthogonal to each other so that they may occur either separately or in combination. Accordingly, we can distinguish three types of contact-induced innovation (in the fourth possible combination – no interlingual identification of either categories or signs – nothing happens):

- (i) ‘interlingual identification of linguistic signs’ without ‘interlingual identification of linguistic categories’ (Section 3.1),
- (ii) ‘interlingual identification of linguistic categories’ without ‘interlingual identification of linguistic signs’ (Section 3.2), and
- (iii) ‘interlingual identification of linguistic categories’ plus ‘interlingual identification of linguistic signs’ (Section 3.3).

These mechanisms of contact-induced innovation are closely related to the three processes of grammatical replication distinguished by Heine & Kuteva (2003, 2005): type (i) corresponds to ‘polysemy copying’, type (ii) may lead to ‘ordinary contact-induced grammaticalization’, and type (iii) covers cases of ‘replica grammaticalization’. Remember, however, that the processes in (i)–(iii) are here regarded as *triggers* of (contact-induced) grammaticalization, while the process of grammaticalization itself implies mechanisms operating at the level of the speech community, in particular propagation and conventionalization.

3.1. Interlingual identification of linguistic signs

The process of distributional assimilation illustrated in (2) above can be made more explicit as follows: there are two signs from two different languages, say Mx (from the model language) and Ry (from the replica language). The sign Mx of the model language is associated with a set M of conventionalized uses or ‘routines’ (say, ‘question word’/Routine1 and ‘relativizer’/Routine2). The sign of the replica language – Ry – is used in a set of contexts R which is different from, but overlaps with, M (e.g. ‘question word’/Routine1). Once Mx and Ry are interlingually identified, Ry will also be used (by individual speakers) to express relativization. At this point, such uses are innovative and may be regarded as improper usage by conservative speakers. Once the novel use of Ry with Routine2 has been conventionalized, the distribution of Ry is extended and ‘assimilated to’ the one of Mx (i.e., Ry becomes Rx). This development is illustrated in Diagram 1 in a semasiological perspective (cf. 2 above for an onomasiological perspective). Note that we employ the terms ‘use’ and ‘routine’ for different things, i.e. the former for the *ad hoc* ‘use’, and the latter for the conventionalized one (cf. Heine & Kuteva’s distinction between ‘minor’ and ‘major use patterns’).

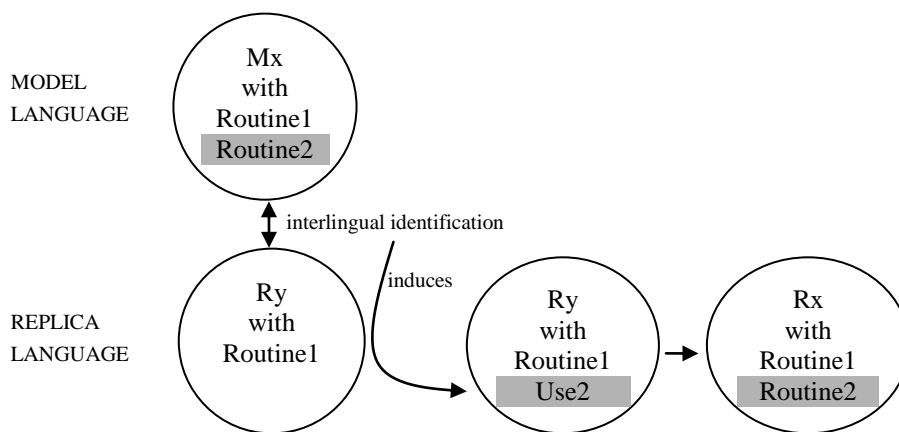


Diagram 1. Distributional assimilation (semasiological perspective)

The development of a new ‘use’ in the replica language is a ‘creative act’ performed by bilingual speakers. When an innovation spreads across the speech community (propagation), the (*ad hoc*) use turns into a conventionalized ‘routine’. As was pointed out in Section 2.1, such extensions typically work in the direction of ‘more grammatical’. Moreover, the very change from a ‘use’ to a ‘routine’ brings with it specific symptoms of grammaticalization, e.g. distributional extension, a higher degree of semantic generality, an increase in frequency and thus susceptibility to phonetic erosion, etc. While these processes are clearly ‘contact-induced’ to the extent that they were triggered by a contact-induced innovation, the formal symptoms of grammaticalization can be regarded as language-internal developments that do not (substantially) differ from corresponding endogenous processes.

Distributional assimilation seems to be rather common in the domain of function words. The Tariana word *kwana* is a case in point. As another pertinent example we may mention the use of comitative prepositions as,

first, NP conjunctions and, later, clause conjunctions in Mesoamerican languages, the latter extension supposedly having taken place under the influence of Spanish (cf. Campbell 1987: 256-7, Heine & Kuteva 2005: 16 on Pipil; parallel processes can be observed in many other Mesoamerican languages; on the borrowing of clausal subordinators in Mesoamerican languages, cf. also Gutiérrez Morales this volume). The use of specific body-parts as local prepositions (relational nouns) in many Mesoamerican languages is another relevant example (cf. Campbell et al. 1986 on Mesoamerican language in general, and Stolz & Stolz 2001: 1544, Heine & Kuteva 2005: 25 on the pattern of polysemy ‘shoulder/back’ more specifically).

As we will provide detailed exemplification from Mayan and Mixe-Zoquean languages below (Sections 4 and 5), we will not discuss any further examples at this point and turn to the second major type of contact-induced innovation, i.e. the interlingual identification of linguistic categories.

3.2. Interlingual identification of linguistic categories

In the type of contact phenomenon discussed in this section, it is not a pair of linguistic signs that is interlingually identified but an entire linguistic category (cf. van der Auwera & Gast 2010 on the notion of ‘linguistic category’ in a cross-linguistic perspective). As a starting point, there is a category in the model language M – say, Mc – and a category Rc in the replica language R. Mc and Rc are functionally similar, though they differ in terms of their specific category values. For instance, the category of ‘number_m’ (of the model language) may have the values ‘singular’, ‘dual’ and ‘plural’, while the category of ‘number_r’ (of the replica language) only has ‘singular’ and ‘plural’. The replica language thus lacks both a ‘routine’ of the model language – the indication of duality – and a grammatical marker to express such a routine.

If the two categories Mc and Rc are interlingually identified, their paradigmatic structures are assimilated, i.e. the same types of uses or

routines are expressed in both languages (e.g. indication of duality, ‘you two’ instead of ‘you’). At a first stage, such uses are innovative, and it is only as a result of propagation that they are fully integrated into the system of the replica language. This development, which we will call ‘category assimilation’, is illustrated in Diagram 2 (rounded rectangles indicate categories and boxes within the latter category values of paradigm cells).⁵

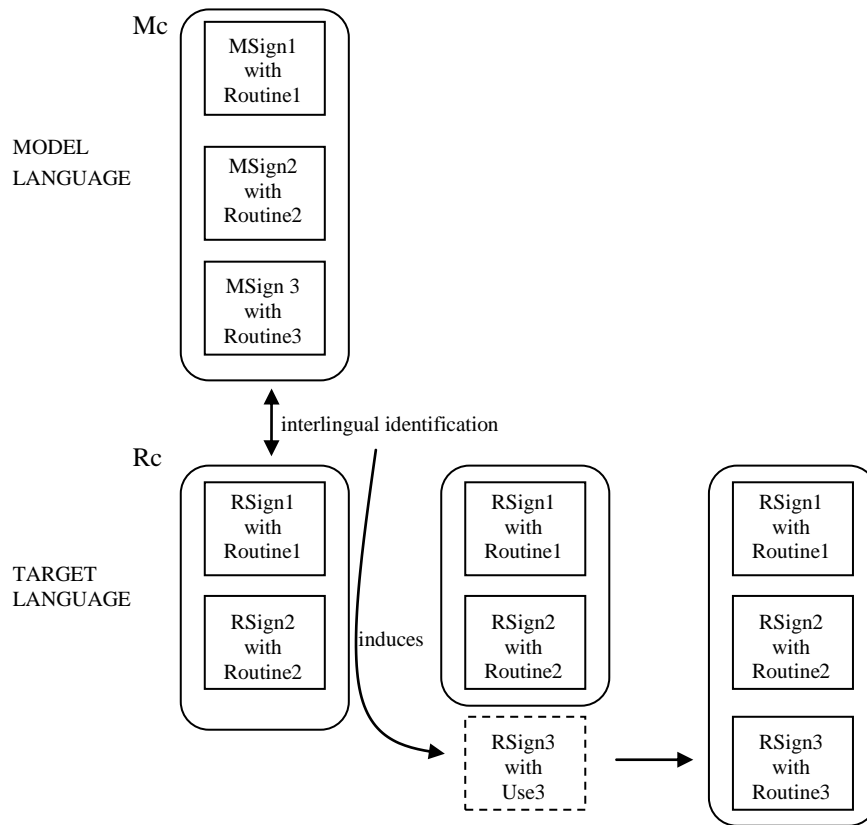


Diagram 2. Interlingual identification of linguistic categories

The question arises what marker will be used to express the new routine in the replica language (RSign3 in Diagram 2). In the type of process under consideration ('pattern replication'), it is always material of the replica language that is used for that purpose (i.e. we are not dealing with the transfer of 'fabric'/'matter'). Inspiration in the formation of a new sign may or may not come from the model language. This difference obviously mirrors the distinction between 'replica grammaticalization' and 'ordinary contact-induced grammaticalization' made by Heine & Kuteva (2003, 2005). In terms of the model proposed here, the difference can be phrased like this: in one case, there is only 'interlingual identification of linguistic categories' (e.g. the Tayo dual, cf. Section 2.2); in the second case, there is both 'interlingual identification of linguistic categories' and 'interlingual identification of linguistic signs'. To illustrate the second case, we will once again discuss the example of the hot-news-perfect in Irish English.

3.3. Interlingual identification of linguistic categories and signs

In a simplified and idealized way, the emergence of the hot-news-perfect in Irish English can be described as follows:⁶ Bilingual speakers of Irish and English interlingually identified the tense-aspect systems of their two languages. The 'discourse habit' of making a distinction between a recent and a not-so-recent past was thus transferred from Irish to (the relevant idiolects of) English. This was a contact-induced innovation of individual speakers. Through propagation and conventionalization, a new value was then introduced into the TAM-system of Irish English, i.e. category assimilation took place.

The sign used for the new category value ('hot-news-perfect') is a periphrastic structure which emulates the corresponding Irish construction. The replication of such periphrases always implies the interlingual identification of other signs or categories. In the case of the 'hot-news-perfect', there is (at least) one instance of interlingual identification of linguistic categories, i.e. the identification of the category of 'verbal noun'

in Irish and the English category of ‘gerund’. Moreover, the Irish copula *tá* (also called ‘substantive verb’) and the English copula *be* were interlingually identified. The most central aspect of interlingual identification is probably the one concerning the prepositions around which these constructions are built. In terms of Matras & Sakel (2007), these prepositions can be regarded as the ‘pivots’ of the constructions in question. In Irish, different prepositions can be found, e.g. *tar éis*, *d’éis*, *i ndiaidh*. These prepositions were interlingually identified with the English preposition *after*. As a result, a ‘hyperlingual’ structural template of (roughly) the form [NP COP P_{AFTER} NP_{DEVERB}] seems to have emerged, with specific instantiations in each of the languages concerned. Given that the introduction of this template into the grammar of English provides a new (periphrastically expressed) value for the category of ‘tense’, this process qualifies as an instance of (contact-induced) grammaticalization.

For reasons of space, we cannot discuss any further examples of contact-induced grammaticalization involving the identification of both linguistic categories and signs. We will just mention some examples which we believe qualify as good candidates for this process. A development of the type sketched above can be assumed for the use of a construction involving a verb meaning ‘to come’ for the expression of deontic modality in Estonian and Latvian (cf. Stolz 1991: 79-80, Heine & Kuteva 2005: 24), or the use of a reflexive construction in the expression of volition to indicate inadvertent action or uncontrolled emotions in Southern Balkanic Romani and Bulgarian (Boretzky & Iglá 1999: 719, Heine & Kuteva 2005: 26). The development of a ‘recipient passive’ in some Slavic languages under German influence, described by Giger (this volume), may be considered another case in point, though Giger describes these processes in terms of either ‘polysemy copying’ (in the case of [non-standard] Sorbian) or ‘replica grammaticalization’ (in the case of Czech). Slovak is hypothesized to have replicated this construction on the model of Czech. Interesting cases of such ‘semantically driven’ processes of change have also been discussed by Prince (1998) for Yiddish and Yinglish, a variety of English spoken by speakers with a Yiddish background (e.g. so-called

‘dos-sentences’ and the pluperfect of Yiddish, presumably a result of contact with Slavonic languages, and ‘Yiddish Movement’ in Yinglish).

3.4. Summary: What is ‘contact-induced grammaticalization’?

As we have tried to show, interlingual identification of linguistic categories and of linguistic signs are independent of and orthogonal to each other. Four cases can thus be distinguished, according to the presence or absence of each of the processes. This is illustrated in Table 1 with one example for each type (in one case, neither of the processes takes place, i.e. nothing happens). It seems to us that each of the three non-empty cells corresponds to one of the processes distinguished by Heine & Kuteva (2003, 2005), i.e. replica grammaticalization (cell i), polysemy copying (cell ii), and ordinary contact-induced grammaticalization (cell iii).

Table 1. Interlingual identification of subsystems and of form-meaning pairings

	Interlingual Id of category	No interlingual Id of category
Interlingual Id of sign	(i) Irish English hot-news-perfect ([be after V-ing])	(ii) Tariana relative pronoun (<i>kwana</i>)
No interlingual Id of sign	(iii) Tayo dual (- <i>de</i>)	(iv) nothing happens

We have argued that two of the cells (i and iii) are intrinsically associated with grammaticalization in the target language, one of them (cell iii) typically. The interlingual identification of linguistic categories, followed by the introduction of a new category in one of the languages as a result of category assimilation, invariably introduces a new category value into the grammar of the target language and thus implies grammaticalization. In the case of interlingual identification of linguistic signs, we follow Matras & Sakel (2007) in assuming that this process is typically, but not necessarily,

associated with an increase in grammaticality. On the view presented here, contact-induced grammaticalization is thus the development of a new category value in the target language that is triggered by and potentially modeled on the structures available in the source language. It does not, however, involve the interlingual transfer of processes as envisaged in Heine & Kuteva's (2003, 2005) process of 'replica grammaticalization'.

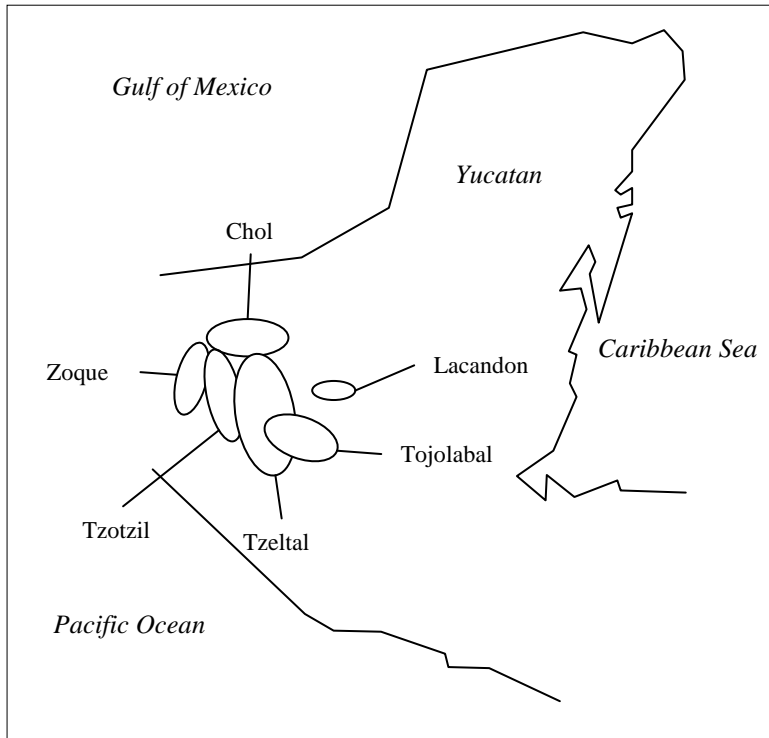
4. Convergence between Mayan and Mixe-Zoquean languages

Having presented a framework for the analysis of contact-induced grammaticalization, we will now discuss specific instances of grammatical convergence between Mixe-Zoquean and Mayan languages in the domain of auxiliary verbs. In Section 5 below, we analyze these examples in terms of the model presented in Section 3. We start with some general remarks concerning contact between Mayan and Mixe-Zoquean languages in Section 4.1. In Section 4.2, the TAM and motion auxiliary constructions of Tzotzil and Zoque, and the parallels between them, are described. Section 4.3 presents relevant data from the domain of modality.

4.1. Language contact in Western Chiapas

Next to the Balkans and South Asia, Mesoamerica is probably one of the best described linguistic areas (see for instance Campbell et al. 1986, van der Auwera 1998, Stolz & Stolz 2001). The fact that the languages under consideration in this paper form part of this area is, however, largely irrelevant. What is much more important is that they have been in direct contact for many centuries and indisputably display traces of convergence both in the lexicon and at different levels of grammar. Zavala (2002: 169) states that "[i]t is well known that Mayan and Mixe-Zoquean languages share a large number of lexemes. This lexicon is shared not for accidental reasons but because these linguistic communities were in close contact and underwent situations of prolonged bilingualism in the pre-Colombian period" (Zavala 2002: 169, our translation). Zavala then goes on to

demonstrate that there are also several instances of structural convergence in the grammars of Mayan and Mixe-Zoquean languages (cf. also Zavala 2000 for a more detailed view of Mayan influence on Olutec). We will focus on two languages that are spoken in the heart of the Mayan-Mixe-Zoquean contact area, i.e. in the western part of the Mexican state of Chiapas, namely Tzotzil (Mayan) and Chiapas Zoque (Mixe-Zoquean). Map 1 shows the approximate locations of the major languages of Chiapas. With the exception of Zoque, all languages shown here belong to the Mayan family.



Map 1. The major indigenous languages of Chiapas

In his family-level comparison, Zavala (2002) concentrates on three contact features: (i) auxiliary constructions, (ii) constructions involving directional roots, and (iii) constructions with secondary predicates. In Zavala (2000), a detailed analysis of Mayan influence on Olutec is presented, also with a focus on the expression of motion. Given that the auxiliary constructions of Tzotzil and Zoque will be discussed in detail below (Sections 4.2 and 4.3), we will here only summarize the other two features, i.e. directional verbs and secondary predicates.

Mayan languages are well known for their elaborate conceptualization of space (cf. Haviland 1993, 1994, 1996; Brown 1994, 2003; Aissen 1994; Bohmeyer & Stolz 2006, etc.). Speakers are very careful in describing the direction of movement, even with predicates that do not convey motion by themselves. We will use examples from Tzotzil to illustrate this.

In Tzotzil, directionals are formed by adding a suffix *-el* to elements of a closed class of verbal roots. The fourteen ‘directionals’ listed by Haviland (1993: 37) are given in (6) (note that the class of ‘directionals’ contains two elements that do not convey motion, namely *lik-el* ‘start-ing’, ‘aris-ing’ and *vay-el* ‘sleep-ing’, but because these roots clearly form part of this class morphologically and distributionally they are usually included in it):

- (6) deictically anchored motion:
batel ‘away from speaker’
talel/tal ‘come’
k’otel ‘arrive there’
yulel ‘arrive here’
 point-oriented motion
ech’el ‘pass by, away’
sutel ‘return’
komel ‘stay’
helavel ‘pass by’

enclosure or region oriented motion

och'el 'enter'

lok'el 'exit'

vertical axis motion

muyel 'ascend'

yalel 'descend'

aspectuals

likel 'arise, start'

others

vayel 'sleep'

Directionals are right-adjoined to the main predicate. They may be combined, thus providing more than one piece of information relating to the movement of some participant:

- (7) *?a l-a-ka?-ik-e ?ich'-ik muy-el tal ?ul*
top DET-2POSS-horse-PL-CL take.IMP-PL ascend-DIR COME.DIR CL
'Your horses, bring them up here.' (Zavala 2002: 181)

The main predicate *?ich'* basically means 'receive, carry, take' (cf. Laughlin 1975: 56). It does not convey motion. The first directional *muyel* indicates that there is upward motion, and the second directional anchors that motion deictically, i.e. the sentence can roughly be paraphrased as 'take them moving upwards and towards me'.

As shown by Zavala (2002), Mixe-Zoquean languages likewise have a closed class of roots which correspond very closely to the ones found in Mayan: "The paradigms of directionals which exist in Mixe-Zoquean and in Mayan languages are remarkably similar in terms of the number of their forms, their semantics and the place they occupy behind the verb" (Zavala 2002: 181, our translation). If we compare the directionals of (Zinacantán) Tzotzil to those of (Chapultenango) Zoque, the parallelism is indeed striking. Table 2 summarizes the inventories of both languages, which are almost completely identical as far as the meanings expressed are concerned. Chapultenango Zoque has one root which Tzotzil lacks (*hahk*

‘cross’), and Tzotzil has two directionals which have no counterpart in Zoque, i.e. *yulel* ‘arriving’ and *ech’el* ‘passing’ (the ‘exceptional’ directionals *likel* ‘starting’ and *muyel* ‘sleeping’ are disregarded). Still, the overall conceptualization of motion in the predicate complex is strikingly parallel.

Table 2. Directional roots in Zinacantán Tzotzil and Chapultenango Zoque

	Tzotzil	Zoque
go (away)	<i>bat-el</i>	<i>mak</i>
come (here)	<i>tal(-el)</i>	<i>mit</i>
arrive (there)	<i>k’ot-el</i>	<i>nuʔk</i>
arrive (here)	<i>yul-el</i>	–
pass by, away	<i>ech’el</i>	–
return	<i>sut-el</i>	<i>wituʔ</i>
stay	<i>kom-el</i>	<i>tʒʌʔ</i>
pass	<i>helav-el</i>	<i>kʌt</i>
enter	<i>och’-el</i>	<i>tʌhkʌʔ</i>
exit	<i>lok’-el</i>	<i>puht</i>
ascend	<i>muy-el</i>	<i>kiʔm</i>
descend	<i>yal-el</i>	<i>mʌʔn</i>
cross	–	<i>hahk</i>

There is an important difference between Tzotzil and Zoque on the formal side, however: while Tzotzil uses an adjunction structure to encode motion with directionals (cf. 7 above), Zoque uses incorporation for that purpose (cf. also Kaufmann 1997). Some pertinent examples are given in (8). We will refer to this construction of Mixe-Zoquean languages as the ‘incorporated motion construction’ (capital ‘Y’ indicates palatalization of the following consonant).

(8) Chiapas Zoque (Mixe-Zoquean)

- a. *Y-ken-puht-u*
2ERG-see-go.out-CP
'He saw it going out.'
- b. *Y-ken-mit-u*
3ERG-see-come-CP
'He saw it coming.'
- c. *Y-ken-kiʔm-u*
3ERG-see-go.up-CP
'He saw it going up.' (Zavala 2002: 179/80)

Structures comparable to the ones pointed out above exist in most Mayan and Mixe-Zoquean languages, but the specific inventories of types of movement or direction are different. For details the reader is referred to Zavala (2000, 2002). With respect to the direction of transfer, Zavala (2000: 147) points out that “[s]everal facts indicate that Olutec and the rest of the Mixe-Zoquean languages acquired the verb-plus-directional pattern from the neighboring Mayan languages”.⁷

The second reflex of contact between Mixe-Zoquean and Mayan languages pointed out by Zavala (2002) concerns secondary or ‘depictive’ predicates (cf. Schultze-Berndt and Himmelmann 2004, Himmelmann & Schultze-Berndt 2005). As was illustrated with respect to the expression of ‘directionals’ above (the ‘incorporated motion construction’, cf. 8), Mixe-Zoquean languages usually allow V-into-V incorporation, or V+V composition. A similar construction is found in Chol (also spoken in Chiapas), where it is used for ‘secondary predicates’:

(9) Chol (Mayan)

- tyi buch-k’oty-i aj-pekro*
PERF sit-arrive-VTI MASC-Pedro
'Pedro arrived sitting.' (Zavala 2002: 184)

Since incorporation is exceptional among Mayan languages while being a salient feature of Mixe-Zoquean languages, Zavala (2002) hypothesizes

that sentences such as (9) are the result of (semantic and structural) transfer from Mixe-Zoquean to Mayan: “Given that the verbal compounds with predicate serialization is a pattern commonly found in the Mixe-Zoquean family and the only Mayan languages that have developed that pattern are those that surround the Mixe-Zoquean family, it is clear that incorporating secondary predication is an areal phenomenon and that Chol and Huastec borrowed it from the Mixe-Zoquean languages with which they are or were in contact at some point in time” (Zavala 2002: 184, our translation).

Directionals and secondary predication will not be discussed any further. Both types of construction are nevertheless relevant because they illustrate that there has been structural transfer between Mixe-Zoquean and Mayan languages, not only in the lexicon but also in the grammar.

4.2. Motion and TAM-auxiliaries in Tzotzil and Zoque

In our comparison of auxiliaries in Tzotzil and Zoque, we will use data from different dialects, as diatopic differences are negligible in the areas of grammar under consideration. As shown by Zavala (2000, 2002), there is clearly convergence at the family level between Mayan and Mixe-Zoquean languages in the domain of auxiliary constructions: “We can conclude that we are dealing with a clear case of ‘indirect diffusion’ under language contact” (Zavala 2000: 144). Zavala identifies the Mayan family as the source of the construction.

We will focus on the most striking parallels between Tzotzil and Zoque in this domain. In both languages, aspect and person inflection is distributed over the auxiliary and the main verb. The auxiliary inflects for aspect and the main verb inflects for person. In Tzotzil, the main verb appears in the subjunctive mood, which is primarily identified by the absence of aspect marking (intransitive verbs additionally take a suffix *-uk/-ik-*). For reasons to become apparent below (Section 4.3), this construction will be called the ‘primary auxiliary construction’. The class of auxiliaries occurring in this construction forms a subset of the set of

roots from which directionals can be formed (cf. 6 above). The roots *helav* ‘pass’ and *vay* ‘sleep’ can be used as directionals but not as auxiliaries. Examples with *ba* ‘go’ and *tal* ‘come’ are given in (10).

- (10) ‘primary auxiliary construction’ of Tzotzil (Zinacantan dialect)
- a. intransitive verbs
ch-ba chonolah-ik-on
 ICP-go(AUX) trade-SUBJ-1ABS
 ‘I’ll go to trade.’ (Aissen 1994: 659)
- b. transitive verbs
Ø-tal h-k’el li k’in-e
 CP-come(AUX) 1ERG-see DET celebration-CL
 ‘I’ve come to see the celebration.’ (Haviland 1981: 219)

The auxiliary construction of Chiapas Zoque is strikingly similar. The main verb is overtly marked as a form that is commonly called ‘dependent’ (or ‘conjunct’) in Mixe-Zoquean linguistics because it tends to occur in (semantically or pragmatically) subordinate clauses (see e.g. Wichmann 1995b). Dependent verbs are characterized morphologically by elements from a set of suffixes which are triggered by specific elements in a ‘trigger slot’ at the beginning of the sentence, and which differ slightly from dialect to dialect. The dialect of Francisco León has three such ‘dependent’ suffixes (cf. Engel et al. 1987: 390): (i) *-u*, e.g. after the progressive marker *nʌ* (*-u* is also used as a completive aspect marker); (ii) *-a/-ʌ* (conditioned by vowel harmony), e.g. after the negative completive operator *ha*; and (iii) *-e/-i* elsewhere (e.g. after the negative incompletive operator *hiʔn*). The use of the three ‘dependent’ suffixes of Francisco León Zoque is illustrated in (11):

- (11) Chiapas Zoque/Mixe-Zoquean (Francisco León dialect)
- a. *nʌ Y-poy-u*
 PROG 3ABS.DEF-run-DEF
 ‘He is running.’ (Engel et al. 1987: 384)

- b. *ha Y-poy-a*
 NEG.CP 3ABS.DEF-run-DEF
 ‘He didn’t run.’ (Engel et al. 1987: 388)
- c. *hiʔn Y-poy-e*
 NEG.ICP 3ABS.DEF-run-DEF
 ‘He doesn’t/will not run.’ (Engel et al. 1987: 388)

Dependent intransitive verbs are further characterized by a special paradigm of person markers, which seems to be a blend of absolutive and ergative marking: in the first and third person, the same prefixes are used as in combination with independent transitive predicates (*N-* [nasalization] for the first person, *Y-* [palatalization] for the third person), whereas in the second person we find the prefix *NY-* (both nasalization and palatalization), which also functions as a second person absolutive marker in combination with independent verbs. The person paradigm of Francisco León Zoque is given in Table 3.

Table 3. Person marking in Francisco León Zoque

	ERG	ABS.DEF	ABS
1	N-	N-	∅
2	N-	NY-	NY-
3	Y-	Y-	∅

In Francisco León Zoque, ‘triggers’ of dependent marking on the verb can roughly be classified into three major classes: (i) discourse-level elements (e.g. coordinators, subordinators), (ii) sentence-level elements (adverbs) and (iii) predicate-level elements (e.g. TAM, motion). It is the third group of elements that can reasonably be regarded as ‘auxiliaries’. The relevant items from Francisco León Zoque are listed in (12). They are sub-classified according to whether or not they overtly inflect for aspect (some of the auxiliaries on the left hand side have inherent aspect specifications).

In the following, we will focus on the auxiliaries on the right hand side. The use of the auxiliary *min* ‘come’ is exemplified in (13):

- (12) auxiliaries of Francisco León Zoque (only verb-related DEP triggers)
- | <u>no aspect inflection</u> | | <u>aspect inflection</u> | |
|-----------------------------|---|--------------------------|--------------------|
| <i>o(y)</i> | indefinite past | <i>oy</i> | ‘round-trip’ |
| <i>na(m)</i> | progressive | <i>maŋ</i> | ‘go’, future |
| <i>u(y)</i> | neg. imperative/exhortative
/potential | <i>min</i> | ‘come’, inchoative |
| <i>ha</i> | neg. preterite | <i>mus</i> | potential modality |
| <i>hiʔn</i> | neg. present | <i>sun</i> | volition |
- (13) *Min-pa* *Y-peht-u*
 come(AUX)-ICP 3ERG-sweep-DEP
 ‘He’ll come to sweep (the floor).’
 (Harrison et al. 1981: 442)

Let us now consider some structural parallels between the auxiliary constructions of Tzotzil and those of Chiapas Zoque (cf. Zavala 2000 for similar observations on Olutec and other Mayan languages). In aspect-marking auxiliaries from (specific varieties of) both Tzotzil and Chiapas Zoque, the incompletive aspect is marked overtly (cf. the a-examples in 15) whereas the completive aspect is marked by the absence of any inflectional material (cf. the b-examples).

- (14) Tzotzil/Mayan (Zinacantán dialect)
- a. incompletive aspect
- | | | |
|--|-------------------------|-------------------|
| <i>ch-ba</i> | <i>h-k’opon-tikotik</i> | <i>preserente</i> |
| ICP-go(AUX) | 1ERG-talk.to-PL.EXCL | president |
| ‘We’ll go to talk to the (municipal) president.’ | | |
| (Aissen 1994: 675) | | |

- b. completive aspect
Mi Ø-tal av-il vakaš li voʔot-e?
 Q CP-come(AUX) 2ERG-kill cow DET you-CL
 ‘Have you come to kill a cow?’ (Haviland 1981: 219)

(15) Zoque/Mixe-Zoquean (Francisco León dialect)

- a. incompletive aspect
mus-pa Y-poy-a
 be.able(AUX)-ICP 3ABS.DEP-run
 ‘He can run.’ (Engel et al. 1987: 388)
- b. completive aspect
mus-Ø Y-poy-a
 be.able(AUX)-CP 3ABS.DEP-run
 ‘He could run.’

Another aspect of clause architecture which makes the two languages strikingly similar concerns clitic placement: Tzotzil has a set of second-position clitics which attach to the auxiliary if there is one because auxiliaries are often (though not necessarily) the first word of a sentence. Aissen (1987: 9) lists the second-position clitics given in (16) (Zinacantán dialect). An example of a clitic attached to an auxiliary is given in (17) (the evidential/quotative clitic *la*).

- (16) Tzotzil second position clitics
- | temporal/aspectual | | modal/evidential | |
|--------------------|------------------|------------------|----------------|
| <i>xa</i> | ‘already’ | <i>nan</i> | ‘maybe’ |
| <i>to</i> | ‘still’ | <i>kik</i> | ‘maybe’ |
| <i>ʔox</i> | ‘completed time’ | <i>me</i> | ‘please’ |
| | | <i>no</i> | ‘just, simply’ |
| | | <i>la</i> | ‘quotative’ |

(17) Tzotzil/Mayan (Zinacantan dialect)

Ti Jesus-e ba=la s-k'opon Riox noxtok
 DET Jesus-CL go(AUX)=EV 3ERG-talk.to God again
 '(They say) Jesus went to pray again.' [NTTZ, Mt. 26, 42]

Chiapas Zoque, in turn, has a set of clitics which are considerably parallel to the ones of Tzotzil in terms of their function and which tend to occur after the first word of the predicate complex, though their position is not entirely fixed. When there is an auxiliary in the sentence, the clitics typically attach to that auxiliary. The clitics listed by Engel et al. (1987) are given in (18), and an example of an auxiliary-plus-clitic combination is given in (19) (cf. the Tzotzil example in 17 above).

(18) Zoque clitics (Francisco León dialect)

=*ʔam* 'already' (cf. Tzotzil *xa*)
 =*ti* 'only' (cf. Tzotzil *no*)
 =*tak* 'still' (cf. Tzotzil *to*)
 =*naʔŋ* 'past tense' (cf. Tzotzil *ʔox*)
 =*ʔuŋ* 'quotative' (cf. Tzotzil *la*)

(19) *Maŋ=ʔuŋ Y-nahay-e: ...*

go(AUX)-ICP=EV 3ERG-say-DEP
 '(They say) he went to tell them: ...' (Engel et al. 1987: 407)

As has become apparent, both constructions under consideration can be described in terms of almost identical structural templates. These templates are certainly more characteristic of Mayan languages than of Mixe-Zoquean languages, which is in accordance with Zavala's (2000, 2002) claim that there has been transfer from Mayan to Mixe-Zoquean in this domain of grammar. The only major structural difference between the auxiliary construction of Tzotzil and that of Chiapas Zoque is that Tzotzil auxiliaries take an aspect *prefix*, while the auxiliaries of Zoque take an aspect *suffix*. The parallelism is illustrated in (20) and (21):

jailed?’. Such indeterminacy in the syntax and semantics of clauses with an auxiliary is not restricted to passive clauses. The main verb of the following example (*lok*’) is an intransitive verb meaning ‘exit, go out, come out, issue forth, run (dye), etc.’ (Laughlin 1975: 217). In this case, the understood mover is simply the speaker plus some bystander:

- (23) Tzotzil
Ch-ba lok’-uk akta noxtok
 ICP-go(AUX) be.issued-SUBJ document also
 ‘We will go to have a document issued also.’ (Haviland 1993: 39)
 (lit.: ‘A document will go-emerge.’)

Such an ‘indeterminacy of argument structure’ is found not only in other Mayan languages but also in Mixe-Zoquean languages. Zavala (2002: 177) provides the following examples from Chol (Mayan) and Olutec (Mixe-Zoquean):

- (24) Chol/Mayan
 passive/indefinite mover
tyi tyäl-i k-il-añ-tyel
 PERF come-ITR 1ERG-see-?-PSV.IMPF
 ‘Somebody came to see me.’ (Zavala 2002: 177)
 (lit.: ‘I was come-seen.’)

- (25) Olutec/Mixe-Zoquean
 passive/indefinite mover
?oy-u=k ?i=yak-kep-e ?alwanyil
 round.trip-CP=AN 3ABS=PSV-look.for-IND mason
 ‘Somebody went to look for the mason.’ (Zavala 2002: 177)
 (lit.: ‘The mason was go-and-return-looked for.’)

Finally, the following example from Ocotepéc Zoque is due to Jan Terje Faarlund:

- (26) Ocotepéc Zoque/Mixe-Zoquean
 causative/indefinite mover
oy-u=ʔuŋ *yah(k)-we-hay-tʌ(h)-i* *teʔ* *simioʔŋ*
 go-return-CP=EV CAUS-call-APPL-PAS-DEP DET Simon
 ‘(the king) had somebody go and call Simeon.’ [PTD]

The main predication says that the implicit subject (the king) had someone call Simeon. The auxiliary denotes a ‘round trip’, i.e. it expresses that the unspecified participant who was sent to call Simeon went and returned. What the sentence says, then, is that ‘the king had someone go and return and call Simeon’. While in the English translation the mover is encoded as a participant of its own, this is not the case in the Zoque example (26), where the unspecified first object does not correspond to an argument position but is implied by the diathetic structure of the verb, which contains a causative (*yah-*), a passive (*-tʌ*) and an applicative marker (*-hay*).

4.3. Modal auxiliaries in Tzotzil and Zoque

In this section, we will outline the expression of possibility and necessity in Chiapas Zoque and Tzotzil. As will be seen, the expression of possibility is largely parallel in both languages, but this parallelism is not particularly remarkable because the patterns found in both languages are rather common cross-linguistically. In the encoding of necessity, however, there are more noteworthy parallels that have in all likelihood resulted from language contact.

4.3.1. Possibility in Tzotzil and Zoque

As the name ‘primary auxiliary’ used for the elements described in Section 4.2 suggests, there is also a class of ‘secondary auxiliaries’ in Tzotzil (though not in Zoque). We use this term for a set of verbal elements that behave like primary auxiliaries in some respects but differ from them in

others. Like primary auxiliaries, secondary ones are marked for aspect while not having an argument structure of their own. The difference is that they do not require verbs in the subjunctive mood but combine with verbs in the indicative mood which are, however, morphologically impoverished. One such ‘secondary auxiliary’ is the modal element *yuʔ*, which expresses possibility. In some dialects (e.g. the one spoken in San Andrés, cf. Hurley & Ruíz Sánchez 1986), it usually combines with verbs in the incomplete aspect that lack the ‘affirmative’ marker *ta*, which is obligatory in combination with dynamic predicates in affirmative main clauses – it is in this respect that the verbs occurring in this construction are ‘morphologically impoverished’. The ‘secondary auxiliary construction’ of Tzotzil is illustrated in (27). (28) shows the use of the verb *ʔabteh* ‘work’ as a main predicate for comparison. Here, the affirmative particle *ta* is obligatory. Forms in the incomplete aspect without *ta* are otherwise found in main clauses only with stative predicates such as *ʔohtikin* ‘know (persons)’ or *naʔ* ‘know (things)’ (cf. 29), and in specific types of subordinate clauses (e.g. purpose clauses, cf. the form *hchan* in 30).

- (27) Tzotzil (San Andrés dialect)
‘secondary auxiliary construction’
x-(y)uʔ *x-a-ʔabteh*
ICP-be.able(AUX) ICP-2ABS-work
‘You can work.’ (Hurley & Ruíz Sánchez 1986: 394)
- (28) dynamic predicate, indicative mood/affirmative
ta x-i-ʔabteh
AFF ICP-1ABS-work
‘I (am) work(ing).’ (Hurley & Ruíz Sánchez 1986: 395)
- (29) stative predicate
x-a-naʔ
ICP-2ERG-know
‘You know it.’ (Hurley & Ruíz Sánchez 1986: 394)

- (30) purpose clause (Chamula dialect)
ch-i-bat ta Chamo?
 AFF.ICP-1ABS-go PREP Chamula

sventa (x)-h-chan bats'i k'op
 in.order.to (ICP)-1ERG-learn real language
 'I'll go to San Juan Chamula in order to learn Tzotzil.'
 (Gast 1998: 46)

The auxiliary *yu?* illustrated in (27) above is generically used for all the nuances of non-epistemic possibility (cf. van der Auwera & Plungian 1998), i.e. for 'participant-internal' possibility (ability, cf. 27), for 'participant external' possibility (or 'root possibility', cf. 31), and for 'deontic possibility' (permission, cf. 32).

- (31) Tzotzil/Mayan (Zinacantan dialect)
Mi x-yu? x-i-bat-otikotik ta s-na li Xun?
 Q ICP-POT ICP-1ABS-go-1PL.EXCL PREP 3POSS-house DET Šun
 'Can we go to John's house?' [Hav 9]

- (32) deontic possibility (permission)
Mi x-(y)u? xa x-i-bat?
 Q ICP-POT now ICP-1ABS-go
 'May I go now?'

x-(y)u? x-a-bat mi i-lah l-av-abtel a?a.
 ICP-POT ICP-2ABS-go if CP-finish DET-2POSS-work PTCL
 'Yes, you can indeed if your work is finished.' [Hav 7]

In ability-readings, *yu?* is often accompanied by the relational noun *-u?un* (cf. 33), which is also used to mark the agent in passive clauses (cf. 34):

- (33) participant-internal possibility (ability)
Mi x-(y)uʔ av-uʔun li ʔabtel-e
 Q ICP-POT 2POSS-by DET work-CL
 ‘Are you able to do the job?’ [Hav 7]

- (34) *-uʔun* as passive agent
Haʔ la t(a) x-mah-at y-uʔun li maxtro-etik ...
 FOC EV AFF ICP-beat-PSV 3POSS-PSV.AGT DET teacher-PL
 ‘They were beaten by the teachers ...’ (Aissen 1987: 63)

In addition to the ‘generic’ possibility modal *yuʔ*, Tzotzil has two more elements with a more specific function: *takʔ*, which usually expresses deontic possibility (permission), and *naʔ*, which indicates ‘acquired capacity’ or knowledge, something that has been learned. *Takʔ* is used in an impersonal construction and therefore bears a third person possessor prefix. Like *yuʔ*, it qualifies as a ‘secondary auxiliary’ (cf. 35). By contrast, *naʔ*, which occurs in a personal construction, behaves like a full verb and takes person inflection (cf. 36).

- (35) Tzotzil/Mayan (San Andrés dialect)
-takʔ: deontic possibility
(x)-s-takʔ x-a-man
 (ICP)-3ERG-POT ICP-2ABS-buy
 ‘You can buy it.’ (Hurley & Ruíz Sánchez 1986: 394)
- (36) Tzotzil/Mayan (San Juan Chamula dialect)
-naʔ: participant-external possibility/deontic
li voʔot-e mu x-a-naʔ x-a-ʔabteh
 DET you-CL NEG ICP-2ERG-know ICP-2ABS-work
 ‘You don’t know how to work.’ (Gast 1998: 128)

The situation in Zoque is parallel in so far as there is a generic auxiliary *mus* which is used with all types of situational possibility (cf. Tzotzil *yuʔ*). This auxiliary triggers the dependent vowel *-a/-A* on the main verb.

Examples illustrating the use of *mus* with different types of possibility are given in (37) – (39):

- (37) Zoque/Mixe-Zoquean (Copainalá dialect)
 participant-internal possibility (ability)
Muhs-u Y-tsak-atak oye-pa teʔ tak-tsak-pa-wa-ʔis
 POT-CP 3ERG-make-DEP house good-ATTR DET
 house-make-ICP-NOM-ERG
 ‘The mason was able to build a good house.’
 (Harrison et al.: 1981: 78)⁸
- (38) Zoque/Mixe-Zoquean
 deontic possibility (permission)
Y-ʔiatsi-ʔis=ʔuŋ=te Y-na-jay-u ke
 3POSS-brother-ERG=EV=FOC 3ERG-say-APPL-CP that
muhs-pa=ʔuŋ ma ʔY-pyʌjk-a teʔ rey-ʔis
 POT-ICP=EV go(AUX) 3ABS.DEP-fetch-DEP DET king-GEN
loro
 parrot
 ‘His brothers said that he could (was allowed to) go and fetch the king’s parrot.’ [RZ, Simion y te’ gigante]
- (39) Zoque/Mixe-Zoquean
 participant-external (non-deontic) possibility
wʌʔkʌ saʔsa mus-ʌ y-ihtya-ʌ dʌ dʌwʌ-ram
 so.that healthy POT-DEP 3ABS.DEP-be-DEP our live-PL
 ‘so that we can live a healthy life.’ (lit.: ‘...so that our lives can be healthy.’) [DM 8/1995, Pueblos oprimidos]

The parallels between Tzotzil and Chiapas Zoque pointed out above may not be particularly remarkable, as the relevant ways of expressing possibility are also commonly found in other languages of the world (e.g. in European ones). These similarities alone can thus not be interpreted as evidence for contact-induced convergence. The parallels in the marking of

necessity, to which we turn now, are much less common crosslinguistically and therefore provide better evidence that there has been transfer through language contact.

4.3.2. Necessity in Tzotzil and Zoque

Both Tzotzil and Chiapas Zoque use a verb meaning ‘to want, to love’ in an impersonal construction to express necessity. In the case of Tzotzil, the relevant verb is *k’an*. The personal use of this verb (‘want’) is illustrated in (40) (note the non-affirmative form *xik’opoh* ‘I speak’):

- (40) Tzotzil/Mayan
Mu h-k’an x-i-k’opoh
 NEG 1ERG-want ICP-1ABS-speak
 ‘I don’t want to speak.’ [Hav 8]

When used as a modal auxiliary, *k’an* takes a third person possessor prefix, which corresponds to an impersonal subject (‘it wants’). It is used to express participant-external necessity (either deontic or non-deontic). There are two constructions: first, *k’an* may be complemented by a finite clause. Such clauses are optionally introduced by the complementizer *ti* (cf. 41). The examples in (41) and (42) are instances of non-deontic and deontic participant-external necessity, respectively:

- (41) participant-external necessity/non-deontic
(x)-s-k’an ti t(a)-x-a-ʔabteh-e yoʔ k’uxi
 (ICP)-3ERG-want COMP AFF-ICP-2ABS-work so that
x-a-mak’lantas o a-ch’amaltak
 ICP-2ERG-support PTC 2POSS-family
 ‘You have to work in order to provide for your family.’
 (Hurley & Ruíz Sánchez 1986: 332)

- (42) participant-external necessity/deontic
yuʔn la (x)-s-k'an ta (x)-s-pok
 because ev (ICP)-3ERG-want AFF (ICP)-3erg-purify
li s-bek'tal-ik
 DET 3POSS-body-pl
 'because they have to purify their bodies (in a ritual).'
 [CRI 2/3, 170]

Alternatively, *k'an* is complemented by a verb in the non-affirmative form (i.e., a form that lacks the 'affirmative marker' *ta*), in what we have called a 'secondary auxiliary' construction. There seems to be no noticeable difference in meaning between the two constructions, and the distribution of these constructions may at least partly be a matter of regional variation:

- (43) *(x)-s-k'an(x)-h-tih-tik ti h-bin-tik-e*
 (ICP)-3ERG-want (ICP)-1ERG-play-1PL DET 1POSS-pot-1PL-CL
 'We have to make music with our pots.' [CRI 2/3, 131]

- (44) *hech o xal (x)-s-k'an (x)-h-pas-be-tik*
 therefore (ICP)-3ERG-want (ICP)-1ERG-make-APPL-1PL
lek ti s-veʔel-ik-e
 well DET 3POSS-food-PL-CL
 'Therefore, we have to prepare good food for them.' [CRI 2/3, 176]

Turning to Zoque, we find exactly the same two constructions, and it is, again, a matter of diatopic variation which of the constructions is preferred. The relevant verb of Zoque is *sun* 'to love, to want' (or *sud*, depending on the dialect). Its (personal) use with the meaning 'to want' is illustrated in (45):

- (45) Chiapas Zoque (Copainalá dialect)
Sun-pa Y-huy-u eyapa koʔkaya
 want-ICP 3ERG-buy-DEP other hat
 'He wants to buy another hat.' (Harrison et al. 1981: 361)

In its modal use, *sun* takes a third person ergative prefix, just like Tzotzil *k'an*. In the first type of construction, it is complemented by a finite clause, as is illustrated in (46) and (47) with examples from the dialects of Copainalá and Chapultenango, respectively:

- (46) Chiapas Zoque (Copainalá dialect)
Y-sun-pa waʔy mang-u Y-tuʔnis-u
 3ERG-want-ICP that go(AUX)-DEP 3ERG-visit-DEP
 ‘You have to go and visit her.’ (Harrison et al. 1981: 155-6)

- (47) Zoque (Chapultenango dialect)
Y-sud-ba waʔka Y-muhs-yah-a
 3ERG-want-ICP that 3ERG-know-PL-DEP

da ore teʔ aɲmayo-yah-pa-pa
 our language DET teach-PL-ICP-REL
 ‘The teachers have to speak our language.’
 [DM 8/1995, Pueblos oprimidos]

The second type of construction, which is found in the dialect of Rayón, is an auxiliary construction that parallels the Tzotzil construction illustrated in (43) and (44) above. The dependent suffix required by *sun* is the one that is also required by *mus*, i.e. *-a/-a:*

- (48) Zoque/Mixe-Zoquean (Rayón dialect)
 a. *Y-sud-pa da meʔts-a kabi*
 Y-want-ICP we search.for wood
 ‘We have to find wood, ...’ (lit.: ‘it wants our finding wood’)
 b. *Y-sud-pa da dzak-a huktahk*
 3ERG-want-ICP we make-DEP fire
 ‘We have to make fire.’
 [RZ, Te’karmen to’nabajkis pyeka tzame]

Even though the use of a verb of wanting as a necessity operator is not unheard of (see for instance Fanari 2005), the striking parallelism of the constructions described above for Tzotzil and Zoque seems likely to be contact-induced. This assumption is supported by the fact that a parallel construction is also used in local dialects of Spanish, as for instance in the dialect of Soyaló (one of the westernmost Tzotzil-speaking districts, i.e. a region in the heart of the Mayan-Mixe-Zoquean contact area). In this dialect, the Spanish verb *querer* ‘to want, to love’ is used in a modal function, typically in an impersonal construction:

- (49) *Quiere que vayas tu mismo.*
 wants that you.go.SUBJ you INT
 ‘You have to go yourself.’ (Carmen Sánchez Sánchez, p.c.)

Note that (49) is ambiguous between an impersonal reading and a personal one, i.e. it can either mean ‘it is necessary that you go yourself’ or ‘(s/he) wants that you go yourself’. The impersonal reading is often also used with nominal complements. For instance, (50) was uttered by a mason when asking his assistant to bring more bricks (note that the preposition *a*, which is required in the *ir*-future of standard Spanish, is regularly omitted in the dialect of Soyaló):

- (50) *Va querer más tabique.*
 FUT want more adobe
 ‘More adobe will be needed.’ (Don Ricardo, p.c.)

The argument structure of the deontic *will*-construction can roughly be described as shown in (51). Remember that both constructions (a. and b.) are available in both languages under discussion.

- (51) Encoding of ‘necessary (happen(e))’:
 a. 3ERG-want [that *e* happens]
 b. 3ERG-want [*e* to happen]

5. Contact-induced grammaticalization in Tzotzil and Zoque: What has been transferred?

Having pointed out some instances of grammatical convergence in the verbal complex of Mayan and Mixe-Zoquean languages in general, and between Tzotzil and Chiapas Zoque more specifically, we now turn to the underlying mechanisms of transfer. We will argue that all cases can be analyzed in terms of interlingual identification of linguistic categories and/or signs. Given that there are virtually no historical records available, the discussion is necessarily tentative and all our arguments should be taken as hypotheses rather than claims. We will focus on the transfer of motion and TAM-auxiliaries in our discussion of the interlingual identification of linguistic categories and use the volition-based modals *k'an* and *sun* to illustrate interlingual identification of linguistic signs.

5.1. Motion and TAM auxiliaries

As we follow Zavala (2000, 2002) in assuming that the auxiliary construction of Tzotzil is endogenous while it emerged under contact influence in Chiapas Zoque, we will first outline the (hypothetical) development in Tzotzil and then turn to the mechanisms through which (we think) this construction was introduced into Zoque. The auxiliary construction of Tzotzil seems to have emerged from the juxtaposition of a subjunctive verb of motion with an (open class) indicative verb. Typically, this construction expresses a purpose:⁹

- (52) Tzotzil (Zinacantan dialect)
ch-i-muy *h-tuch'* *i* *tahchuch-e*
AFF.ICP-1ABS-climb 1ERG-cut DET lentimus.mushroom-CL
'I climbed up to pick the lentimus mushroom.' (Haviland 1993: 35)

When the subject of the main verb is in the third person, there is no overt person marking (because the third person absolutive marker is phonologically empty), as in (53a). It is likely that the empty person prefix was at some point reanalyzed as no person prefix at all (cf. 53b).

- (53) a. *ch-∅-tal* *ve'-uk-∅*
 ICP-3ABS-come eat-SUBJ-3ABS
- ↓
- b. *ch-tal* *ve'-uk-∅*
 ICP-come eat-SUBJ-3ABS

Once the process of reanalysis shown in (53) had taken place, the auxiliary construction could be generalized to the first and second person, so that instead of *ch-i-tal veʔ-ik-on* ('I.come I.eat.SUBJ' with the first person absolutive marker *i-* on the first verb) we get *ch-tal veʔ-ik-on* ('will.come I.eat.SUBJ').

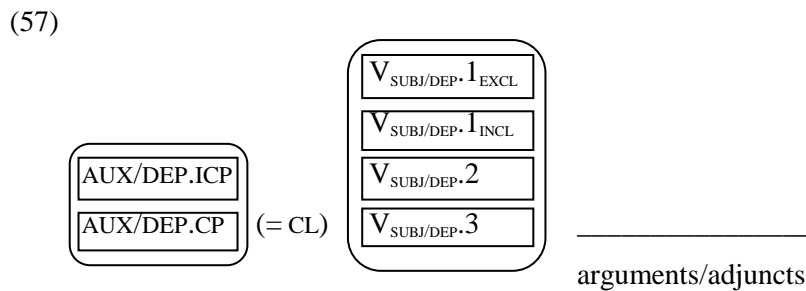
The situation in Zoque is different. As a starting point, we can assume a 'clause template' for dependent clauses similar to the one found in the (conservative) Mixe variety of San José El Paraíso (cf. van Haitsma & van Haitsma 1976): there is a 'trigger slot' at the beginning of the clause and the verb is usually sentence-final. The arguments and adjuncts are located between the trigger slot and the verb:

- (54) [_____] _____ PERS-Verb-DEP
 trigger slot arguments/adjuncts ↑
-

In San José El Paraíso Mixe, the trigger slot is occupied by elements such as "introducers, ligatures [and] adverbs", e.g. *cĩ* 'then', *ko* 'when', *ma:b* 'since', *kaʔ* 'no', *tĩ* 'already' and *ʔoy* 'having gone' (van Haitsma & van Haitsma 1976: 58). For Totontepec Mixe, Schoenhals & Schoenhals (1982: 317) provide the following (non-exhaustive) list of dependent triggers: *hets*, 'and', *vaniʔts* 'after, then', *kep* 'tomorrow', *oš* 'yesterday',

(56) AUX/DT.ASP (= CL) PERS-V-SUBJ/DEP _____
arguments/adjuncts

As shown in Section 4.2, the two interlingually identified categories – AUX/DT and SUBJ/DEP – are organized into one-dimensional paradigms in both languages. The AUX/DT category comprises two slots, the one of SUBJ/DEP-verbs four (as there is an inclusive/exclusive distinction). The paradigmatic organization of the ‘AUX/DT-construction’ can thus be represented as shown in (57) (cf. Diagram 2 in Section 3.2 for the representation of categories and their paradigms). If we are right in assuming that the structure emerged in Tzotzil and was replicated in Zoque, the parallelism is a result of category assimilation in Zoque.



It seems likely to us that the processes of category assimilation sketched above were accompanied by instances of interlingual identification of linguistic signs and distributional assimilation. In particular, the integration of new elements into the (newly created) category of ‘auxiliary’ in Zoque may have been enhanced by the distributional assimilation of specific motion verbs. While the interlingual identification of categories and that of signs are, in principle, independent of each other, the two processes certainly ‘conspire’ in systematic ways in “the syncretisation of processing operations” (Matras & Sakel 2007: 835). After all, paradigms are (structured) sets of linguistic signs and the degree of similarity between

paradigms obviously correlates positively with the number of interlingually identified elements occurring in those paradigms. The ‘mutual reinforcement’ of the two processes under discussion will also become apparent if we consider the deontic modals *k’an* and *sun*.

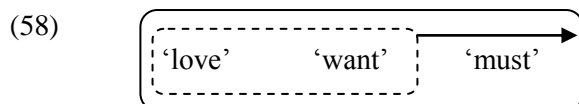
5.2. The expression of deontic necessity with a volitional verb

The expression of deontic necessity in Tzotzil and Zoque seems to provide a clear case of interlingual identification of linguistic signs. We will, again, start with the development of the Tzotzil auxiliary (*k’an*), assuming that the emergence of the construction in Zoque was contact-induced.

The modal use of the volitional verb *k’an* in Tzotzil can be regarded as an instance of generalization over a (deontic) ordering source. A predicate of wanting takes two arguments, an Experiencer and a Desideratum, e.g. ‘[I]_{EXP} want [you to go]_{DES}’. If the position of the Experiencer is left unspecified in an impersonal construction, the Desideratum remains as a sole semantic argument of the construction. A propositional Desideratum, in turn, (‘you to go’) is semantically akin to a proposition in the scope of a deontic necessity operator, as both express hypothetical states of affairs which represent a ‘better world’ in comparison to the specific alternative worlds under discussion.

As a result of the process of reanalysis sketched above, Tzotzil *k’an* acquired an additional function, i.e. the expression of deontic modality. In fact, sentences with *k’an* may be ambiguous between a personal and an impersonal interpretation (as is the Spanish examples in 49 above; note, however, that in most contexts aspectual information will distinguish the two interpretations in Tzotzil).

In terms of the model presented in Section 3, the verbs *k’an* (Tzotzil) and *sun* (Zoque) were interlingually identified, and the distribution of Zoque *sun* was assimilated to that of Tzotzil *k’an*. Given that the additional meaning acquired by Zoque *sun* (deontic modality) is more grammatical than the lexical meaning (‘want’), this process qualifies as an instance of contact-induced grammaticalization. It is illustrated in (58).



The replication of a ‘devolitional’ deontic modal in Zoque also implies grammaticalization in another respect. In their modal uses, the two verbs (*k’an* and *sun*) are associated with specific constructions (cf. 51 above). Zoque *sun* is fully integrated into the class of dependent triggers/auxiliaries (the ‘pivot’ of the relevant construction, in terms of Matras & Sakel 2007). Tzotzil *k’an* forms a distributional class with ‘secondary’ auxiliaries like *yu?* ‘be able to’. The existence of a pair of interlingually identified signs – a ‘hyperlingual’ sign *sun/k’an*, as it were – further strengthens the link between the categories containing the relevant elements, even though we have made a distinction between ‘primary’ and ‘secondary’ auxiliaries in Tzotzil which does not seem to exist in Zoque.

6. Conclusions

We have argued that processes of the type pointed out by Heine & Kuteva (2003, 2005) and Aikhenvald (2002), as well as the examples from Mayan and Mixe-Zoquean languages discussed in this chapter, can be analyzed on the basis of two processes of interlingual identification: (i) interlingual identification of linguistic categories, and (ii) interlingual identification of linguistic signs. On this view, it is not necessary to attribute any linguistic meta-knowledge to speakers. We have tried to show that the analysis of contact-induced grammaticalization can profit from a distinction between the mental process of ‘contact-induced innovation’ on the one hand, and the sociolinguistic process of propagation on the other, and that it is the former type of process that provides the key to an understanding of contact-induced grammaticalization.

The arguments and claims made in this paper are necessarily tentative, given the hypothetical nature of the actual developments in the languages

under discussion, and given the fact that the interaction of grammaticalization and language contact is very hard to get a grip on even for languages which are better documented in historical terms. The main objective of this paper has been to discuss the question of what can plausibly be assumed to be transferred in cases of ‘grammatical convergence’. We have argued for an interpretation of ‘contact-induced grammaticalization’ as subsuming processes of grammaticalization that have been triggered by interlingual identification of linguistic signs or categories. The data discussed are, obviously, limited in scope. Still, we hope to have made a contribution to the relationship between language contact and grammaticalization, a topic which has chiefly been instigated by Aikhenvald (2002), Heine & Kuteva (2003, 2005) and Matras & Sakel (2007), and which certainly deserves to receive more attention in future typological and historical linguistic work.

Notes

1. This paper is a result of a research stay by Volker Gast at the University of Antwerp in autumn 2005, financed by the Alexander-von-Humboldt Foundation (Feodor-Lynen programme) and the Research Council of the University of Antwerp. Financial support from these institutions is gratefully acknowledged. The paper was updated and partly rewritten in spring 2011. We would like to thank two anonymous referees and the editors of this volume for helpful comments. Any remaining inaccuracies are our own.
2. Roughly, $\omega_{\text{PIECE-OF-LAND-ALMOST-COMpletely-SURROUNDED-BY-WATER}} \rightarrow \omega_{\text{ALMOST-INSULA}}$.
3. Cf. also Giger (this volume: Note 27) on the question of symmetrical vs. asymmetrical transfer (‘parallel grammaticalization’).
4. Both the term and the idea may be due to Nau (1995), a work Heine and Kuteva frequently also refer to. In this paper we focus on the hypotheses by Heine and Kuteva rather than those by Nau, since the former are more explicit and also more ambitious. For the subtype of contact-induced grammaticalization discussed under (3), Heine &

Kuteva (2003: 562; 2005: 270) also see a parallel and a precursor in Bruyn (1995). We would rather interpret Bruyn (1995) as an *avant la lettre* criticism and plea for caution (a point already made in van der Auwera et al. 2005: 210).

5. In Diagram 2, ‘category assimilation’ is depicted as an asymmetrical process, but it can, of course, work in both directions.
6. The description is simplifying in several respects. For instance, the ‘after-perfect’ is not only used as a ‘hot-news perfect’. At least in earlier stages of Irish, it also has a completive use; cf. Pietsch (2005: 9) for a brief survey.
7. Zavala (2002) argues on the basis of phonological evidence (more attrition in Mayan), of productivity (higher frequency and more combinability in Mayan than in Mixe-Zoquean) and of distributional factors (restriction to verbal predicates). We may add to this that some Mixe-Zoquean languages seem to use only three or four types of motion in that construction (e.g. San José El Paraíso Mixe; cf. also Section 6 and Zavala 2000).
8. For Copainalá Zoque, see also Wonderly (1951, 1952).
9. Remember that the absence of aspect marking on the verb identifies the predicate *htuch*’ as a subjunctive form. Transitive verbs do not take overt subjunctive inflection in Tzotzil.

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