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Investigating the mechanisms of pattern replication in language convergence*

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The replication of concrete formal-structural material (morpho-phonological forms with attached meanings) from one language in another is universally understood to instantiate grammatical and lexical ‘borrowing’ (we follow mainstream usage here and attach no value judgement to the word ‘borrowing’ itself, which is obviously just a metaphor). More controversial is the interpretation of contact-induced structural change that does not involve such replication of forms, but is manifested rather through shift in meaning, distribution, or organisation of inherited material, inspired by an external model. Such changes are sometimes referred to as ‘convergent developments’, and are often typical of linguistic areas. We explore the position of language convergence of this kind in the overall context of contact-induced change. Taking into consideration recent work on language convergence in the context of grammaticalisation theory (Heine & Kuteva 2005), we address the mechanism that is involved when language-internal resources are employed to replicate an external model. We attempt to trace this mechanism to its roots at the level of the organisation of communicative discourse in multilingual settings.

1. Introduction

Contact-induced language change can lead to direct replication of morphemes and phonological shapes from a source language; we shall refer to this in the following as replication of linguistic *matter*, abbreviated *MAT*. Language contact can also lead to re-shaping of language-internal structures. In the latter process, the formal substance or matter is not imported but is taken from the inherited stock of forms of the recipient or replica language (i.e. the language that is undergoing change). Rather, it is the patterns of distribution, of grammatical and semantic meaning, and of formal-syntactic arrangement at various

levels (discourse, clause, phrase, or word) that are modelled on an external source. We call this *pattern replication*, abbreviated *PAT*.

Our aim in this paper is to identify the language-processing mechanism that is responsible for pattern replication. We suggest that it involves identifying a structure that plays a pivotal role in the model construction, and matching it with a structure in the replica language, to which a similar, pivotal role is assigned in a new, replica construction. We call this process ‘pivot-matching’. The replica construction evolves around the new pivot in a way that generally respects various constraints of the replica language. Pivot-matching may lead to grammaticalisation, a notion that is at the heart of Heine & Kuteva’s (2003, 2005) recent discussion of convergence phenomena. But we suggest that grammaticalisation is just one possible by-product of pivot-matching. In a model of contact-induced change, the position of pivot-matching will therefore be superior to that of contact-induced grammaticalisation (see Figure 1):

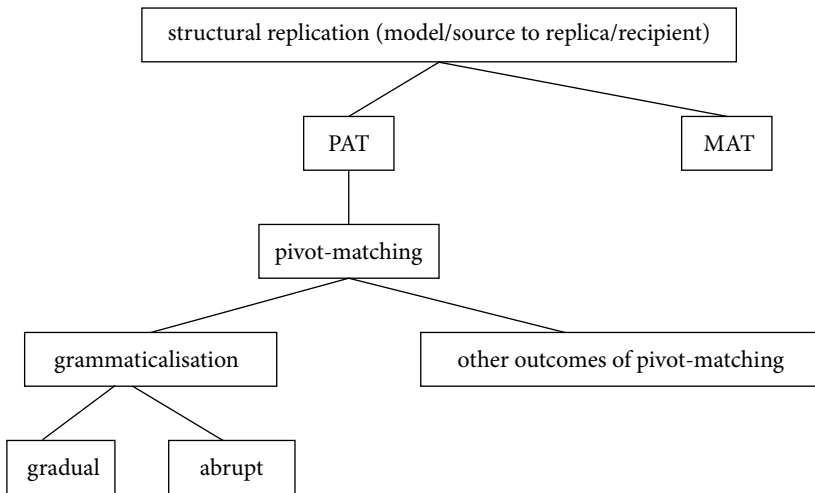


Figure 1. The position of PAT and pivot-matching in contact-induced change structural replication (model/source to replica/recipient)

Note that the procedure which we call pattern replication operates under the constraint of the exclusion or avoidance of direct replication of matter from the model language. This means that overtly, the structural coherence of the replica language as the chosen language of the communicative interaction (at least in respect of the utterance or the construction in question) is respected. The procedure is to replicate the abstract organisational pattern of the model construction using suitable elements in the replica language. Strictly speaking, we are therefore dealing with the export of constructions from a model

language to the replica language, rather than with an import or ‘borrowing’ of structures: the speakers’ motivation is to avail themselves of constructions that are part of their overall linguistic repertoire, irrespective of the setting of the interaction (and so irrespective of the choice of a particular language ‘system’ for the current interaction). In order to do this, and at the same time to respect the overt structural coherence of the chosen language of the ongoing interaction, speakers turn to the creative process of pivot-matching.

Consider the following example of pattern replication: the emergence of a transitive/intransitive split in past-tense verbs in Neo-Aramaic, based on a Northern Kurdish (Kurmanji) model (cf. also Chyet 1995, Goldenberg 2000, Matras 2000). Our data are taken from Jewish Northeastern Neo-Aramaic or *lišan di-dan* ‘our language’, from Saqqiz in Iran (Matras, fieldwork), and from standard-literary Kurmanji (based on the Botan-Cizre dialect of southeastern Turkey). In both languages, the formation of the past tense is based on an earlier generalisation of the past participle. With intransitive verbs, subject concord is marked in both languages by the attachment of what is historically an enclitic copula, to the participle verb base:

- (1) a. ez rabû-m û çû-m derve (Kurmanji)
 1SG.NOM stood.up-1SG and went-1SG out
 ‘I stood up and went out’
 b. qîm-na, zîl-na warya (Saqqiz Neo-Aramaic)
 stood.up-1SG went-1SG out

With past-tense transitive verbs, however, the Kurmanji verb agrees with the patient (or else it appears in a default 3.SG form). The agent appears in the oblique case (2a). In Neo-Aramaic, which has no nominal case, this structure is mirrored by the expression of the agent through a distinct set of verbal concord markers, represented in (2b) as *-li*, which is different from the marker employed with past-tense intransitive verbs (*-na*):

- (2) a. ez rabû-m û min derî vekir (Kurmanji)
 1SG.NOM stood.up-1SG and 1SG.OBL door opened.Ø
 b. qîm-na, tara-kê plix-li (Saqqiz Neo-Aramaic)
 stood.up-1SG door-the opened-1SG
 ‘I stood up and opened the door’

In both languages, the past-tense transitive agreement patterns derive from an oblique expression of the agent. In Kurmanji the agent was expressed historically by a dative pronoun ‘to-me’, which was ultimately succeeded by the oblique pronoun *min*. In Neo-Aramaic, it was expressed historically by a

person-inflected preposition *l-i* 'to me'. In Kurmanji the oblique agent now assumes a paradigmatic position that parallels that of the nominative agent. In Neo-Aramaic, by contrast, the historical prepositional agent *l-i* 'to-me' is grammaticalised into a person-concord ending. This might be interpreted as an analogy to the grammaticalisation, in both Neo-Aramaic and Kurmanji, of the copula into a person-concord ending with past-tense intransitive verbs. In any case, the model for the grammaticalisation of a prepositional agent into a bound person concord marker is not provided by Kurmanji.

And yet the overall motivation for the change was triggered by the Kurmanji construction. In the first stage, the generalisation, in Kurmanji, of the past participle at the expense of the old past-tense conjugation was perceived by bilingual speakers as the pivotal feature of the Kurmanji construction. This feature was adopted in Neo-Aramaic as well. Next, the marking of the agent in Kurmanji by a non-nominative form was copied in Neo-Aramaic by introducing a prepositional agent *l-i* 'to-me', which followed the verb. Finally, the emergence of new past-tense concord suffixes in Kurmanji led to a differentiation in agreement patterns between past-tense intransitive and transitive verbs. It was this distinction that was now perceived by bilinguals as the pivotal feature of the Kurmanji construction, and was copied in Neo-Aramaic by the exploitation of the postposed agentive marker *l-i* 'to-me' as a concord suffix *-li* '1sg'. Thus, the attempt to replicate the model construction leads to selective changes in the replica language. Each change aims at reproducing features that are perceived as pivotal to the construction at different stages of its evolution. Grammaticalisation is thus indeed triggered by contact, but it is a by-product of a 'higher goal': the syncretisation, in the two languages, of the mental procedures that map abstract operations such as person concord to the expression of predicates.

If we imagine ourselves in the position of the first generation of innovators, we might picture speakers beginning to employ the organisational pattern of agent-verb-agreement which they use in Kurmanji, even while conversing in Neo-Aramaic. This means that they relax to some extent the need to distinguish between their two repertoires when planning the utterance (or just the verb phrase). Overtly, however, they continue to adhere to the situational constraints on language choice, thus separating the languages in their choice of matter. This, we suggest, is the conversational strategy that triggers the process of pattern-replication and pivot-matching.

2. The grammaticalisation model in contact linguistics

An intriguing question is that of the relationship between change that is oriented toward an external model but involves strictly the re-arrangement of internal (inherited) substance or matter, and other types of language-internal change. This is the subject of a key debate in pidgin and creole studies, where models of universal change often compete with substrate-oriented interpretations. Keesing (1991) creates a bridge between the two approaches, by interpreting substrate-based developments as cases of grammaticalisation (see also Siegel 1997). Referring to Melanesian Pidgin, he argues that alongside some processes of genuinely language-internal grammaticalisation, the expansion of complex grammar is accelerated through the identification of lexemes in the superstrate language with the grammatical meanings that are carried by parallel lexemes in the substrate languages. This in turn is made possible through the presence of an unambiguous model of form:function mapping which is largely shared by the various Eastern Oceanic Austronesian substrate languages whose speakers have played the main part in the development of the pidgin.

During the early 1990s, interest grew in identifying parallels between the then-maturing grammaticalisation theory and language change triggered by contact. Bisang (1996: 350), for instance, discussing convergent developments in East Asia, regards grammaticalisation as an important component in contact-related change, hinting that simplification processes in situations of cross-language communication may depend on creative processes involving metonymy, metaphor, and reanalysis, which give rise to grammaticalisation. Discussing Gascon and French influences on Basque, Haase (1991) too establishes a connection between convergence (referred to as “Entlehnung” = ‘borrowing’) and grammaticalisation. According to Haase (1991: 168–171), grammaticalisation operates in the first instance as a constraint, whereby less grammaticalised elements tend to be more borrowable, i.e. more replicable in the replica language (while, by contrast, highly grammaticalised items are more frequently subject to so-called ‘substance interference’, or matter replication). This is explained in terms of the greater potential of less grammaticalised (more lexical) elements for finding translation equivalents in the replica language.

Haase gives the example of the instrumental and comitative cases in Basque, in the contact zone with Romance (Gascon). Of these, the instrumental is the more highly grammaticalised, having for example a more abstract and less regular meaning and a broader range of distribution. The Basque comitative, by contrast, tends to have a regular meaning and a narrower distributional context. It is thus more easily identified with a Romance equivalent

(the preposition meaning ‘with’), and its distribution begins to replicate the distribution of this Romance model. It is extended, for instance, to cover some instrumental meanings, such as ‘with a spoon’ (Haase 1991: 67).

Haase refers to this grammaticalisation constraint as the “unidirectionality of the grammaticalisation process” (1991: 169). Changes of this kind are anchored in the language contact situation through the fact that speakers are motivated to avail themselves of the expressive means of both languages, but can only do so if they are able to identify parallel items in the two languages as translation equivalents. The essence of the scenario of contact-induced grammaticalisation according to Haase is thus this: Two morphemes are identified with one another because they have equivalent translations. This is central to the borrowing process, as it leads to the development of an abstract relationship between structures of the two languages which are otherwise independent contextually and distinct structurally.

A somewhat similar approach is taken by Nau (1995), who, discussing contact developments in Finnish, distinguishes between ‘material borrowing’ and ‘loan-meaning and loan-translation’. The basis for loan-translation is said to be words in the model language that show polysemy involving a more abstract and a more concrete sense. 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. The tendency is therefore toward a scalar or hierarchical development which resembles language-internal grammaticalisation (cf. Nau 1995: 175–176). Here, then, we have the realisation that grammaticalisation is not just a constraint operating on replication (borrowing) — in that it limits borrowing to the availability of a semantically replicable model and therefore to more concrete entities — but a way of enabling similar organisation of matter in the two languages. Contact — the availability of two sub-sets of structures within the linguistic repertoire — thus motivates grammaticalisation (cf. Hopper & Traugott 1993:63–93, who identify language contact as one of the factors that promote grammaticalisation).

Discussing the adoption of Balkan syntactic features in Romani, Matras (1994: 67, 241–243) views grammaticalisation as a mental operation involving the exploitation of a native item’s internal function to carry out an abstract grammatical operation or linguistic procedure that is replicated from the model language. The focus here is on speakers’ attempts to align the structures of abstract, mental processing operations in the two languages, by adapting processing in the group-internal language to that of the external or majority language. This attempt is not primarily constrained by any particular

directionality; rather, it sets in motion processes of functional exploitation, leading to the transposition of certain structural elements from one functional ‘field’ of language into another (e.g. from lexical or deictic to operational).¹ The goal is thus maximum syncretisation, in the two languages concerned, of mental processing operations, and the means of achieving this is the enhancement of the functional scope of available structures (cf. Matras 1998a: 100–101).

In an elaboration on this model, Matras (1998b) defines convergence as “the adaptation of an internal element to match the scope and distribution of an external element that is perceived as its functional counterpart”. Convergence is thus regarded in the first instance as a compromise between structural retention and structural accommodation, a process which affects the internal morphosyntactic organisation primarily (but not exclusively) of clauses and propositions, and which is limited by internal constraints on the modification of structures.

One example discussed by Matras (1998b; see also Matras 1998a) concerns the Macedonian dialects of Turkish. Here, the infinitive in modal constructions has been replaced, as in the other Balkan languages, by a finite structure:

- (3) *istiyor git-sin*
 want.3SG go-3SG.SUBJ
 ‘He wants to go’

Unlike the potential model languages (the contiguous languages of the Balkans), however, the Macedonian Turkish construction is not introduced by a modal complementiser (cf. Bulgarian and Macedonian *da*, Albanian *të*, Greek *na*, Romanian *să*, Romani *te*). Instead, it employs the historical optative ending (cf. Standard Turkish *git-sin* ‘may he go!’), which entails contextual dependency of the realisation of the action upon the fulfilment of a wish; it thus exploits the optative as a subjunctive, which encodes a syntactic dependency on the main verb. The pivotal feature of the regular Balkan modal construction is the finite expression of the target action, combined with the modality of dependency. In most languages this is expressed by a combination of a modal-subjunctive complementiser and the present tense (cf. Macedonian *da id-im* ‘that I go’). In Macedonian Turkish this pivotal feature is taken on, but it is now mapped onto a single element, namely the Ottoman Turkish optative mood, which serves both functions together: the optative is semantically dependent, and it is finite.

The advantage to the speaker of the emergence of such changes is the syncretisation of processing operations in the two languages, allowing speakers to apply similar mental organisation procedures to propositions in both languages of their repertoire. The outcome need not, however, be a one-to-one

correspondence between form and function throughout the construction. Rather, it is often the case that the syncretisation will selectively target a pivotal point of reference which is perceived as ‘carrying’ the construction. The convergence mechanism was thus described in Matras (1998b) as consisting of the following steps or ‘instructions’ to the creative language user:

- (4) a. Identify constructions with parallel functions in the two languages;
- b. Identify a functional ‘pivot’ on which the model construction rests;
- c. Identify a parallel ‘pivot’ in the recipient language;
- d. Identify their functional scope and its necessary extension;
- e. Identify features that cannot be compromised (constraints);
- f. Accommodate accordingly.

‘Constraints’ (step (e)) indicates that the replica construction will not be identical to the model construction. Thus, Neo-Aramaic lacks nominal case, and so it cannot replicate the precise layout of the modern Kurmanji past-tense transitive construction with its pre-verbal oblique agent; hence it limits the distinction between transitive and intransitive verbs to the set of concord markers alone. Macedonian Turkish lacks an obvious candidate for a subjunctive complementiser. Its only inherited complementiser, *ki*, has become specialised for factual constructions (*dedim ki ...* ‘I said that ...’). Its conditional construction is synthetic, involving the suffix *-sE*, as in Turkish, and so this is not a candidate either (compare Romanian, where the non-factual and conditional marker is *să*, and Romani, where both functions are carried by *te*). On the other hand, Turkish does have inflectional material that can be used to indicate the subjunctive mood of the complement construction, namely the optative. There is therefore no isomorphism between the modal constructions in Macedonian Turkish and its contact language. Grammaticalisation figures in this model as a possible outcome of the process of extension of functional scope. Thus, the promotion of the Neo-Aramaic prepositional agent *l-i* to a bound concord marker (agreeing with the past-tense transitive agent) is a case of grammaticalisation, as is the extension of the Macedonian Turkish (contextually dependent) optative marker *-sin* to a (syntactically dependent) subjunctive marker. Grammaticalisation is therefore a possible outcome of the accommodation process.

The appearance of Heine & Kuteva’s (2003, 2005) work is a major turning point in the discussion of contact-induced grammaticalisation. The principal claim made by Heine & Kuteva is that contact-induced grammatical replication of the kind characterised by transfer of grammatical meaning (but not of form) is subject to the general constraints on grammaticalisation, and so it must be viewed through the prism of grammaticalisation theory. Typical

changes triggered by contact are the expansion of a construction from minor to major use patterns, including an increase in frequency, extension of its distributional context, extension across categories and the emergence of new categories (Heine & Kuteva 2005: 44–75). These changes, it is argued, are subject to the general unidirectionality of grammaticalisation, which entails a) extension, i.e. the rise of novel meanings, b) desemanticisation (semantic bleaching), c) decategorialisation or loss of morphosyntactic properties (such as the loss of gender and number on nouns in their grammaticalisation to location expressions), and d) erosion or reduction of phonetic substance (Heine & Kuteva 2005: 15, 80). The formula for ‘ordinary’ contact-induced grammaticalisation is presented in (5) (from Heine & Kuteva 2003:533, 2005: 81):

- (5) a. Speakers notice that in language M there is a grammatical category Mx.
- b. They create an equivalent category Rx in language R 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.

Following this formula, the Macedonian embedded finite verb introduced by a subjunctive complementiser (*da id-im* ‘that I go’) would serve as the model category Mx. The Turkish optative (*gid-eyim* ‘may I go!’) would be considered an available pattern Ry in the replica language. The universal strategy of grammaticalisation on which speakers draw in order to develop Rx — a subjunctive embedded verb (*gid-eyim* ‘that I go’) — entails the promotion of the optative from a relatively minor to a major category, an increase in its distributional contexts (from the expression of ‘wishes’ to modal subordination) and thus an increase in its frequency, and arguably an extension across categories, from optative to subjunctive.

A minor variant of this formula is referred to by Heine & Kuteva (2003: 539, 2005: 92) as ‘replica grammaticalisation.’ Here, speakers are said to replicate a process which is assumed to have already taken place in the model language. This assumes some conceptual access to the various stages of the process. As an example, Heine & Kuteva (2003: 539, 2005: 93) cite Weinreich’s (1953: 40) report of the use of the 3PL as a politeness marker in Silesian Polish, based on the German politeness marker *Sie* (which is formally identical with the 3PL *sie*). What makes this process different from ordinary grammaticalisation, according to Heine & Kuteva, is the fact that the pathway of extension appears to have been accessible to speakers:

The model language German (=M) has undergone a grammaticalization process whereby the third-person plural pronoun (=My) was grammaticalized to a second-person singular pronoun to be used for polite/formal reference (= Mx). Polish (=R) speakers in Silesia replicated this process by extending the use of their third-person plural pronoun (=Ry) to a new function (=Rx). (Heine & Kuteva 2005: 93; cf. 2003: 539)²

Finally, Heine & Kuteva (2005: 100–103) allow for a third type of development, called ‘polysemy copying’, which is a process of loan translation without grammaticalisation. Here, the model is replicated directly by means available in the replica language, without any change in the grammatical status of those means (cf. Israeli Hebrew *lakáxat xélek* lit. ‘to take (a) part’, on the model of European languages, e.g. German *teilnehmen* ‘to take part’). In grammar, polysemy copying is claimed to be rare, since most instances that might be said to involve polysemy actually also match the directionality of grammaticalisation. A possible candidate for polysemy copying is the Macedonian Turkish relativiser *ne*, as in *adam ne geldi* ‘the man who [$<$ what] came’ (see Matras 1998a), originally an interrogative meaning ‘what’ (and limited to the interrogative meaning in Ottoman and Standard Turkish). It replicates Macedonian *što*, which in Macedonian is used both as an interrogative ‘what’ and as a relativiser. But, to follow Heine & Kuteva’s argument, the promotion of an interrogative to a relativiser/subordinator follows the principles of grammaticalisation — directionality from more concrete to more abstract, extension of context, frequency, and category — and so polysemy in this particular case may be subsumed under the general formula for contact-induced grammaticalisation.³

Some of the boundaries between the various types of change thus remain fuzzy. Polysemy is closely related to replica grammaticalisation (= the copying of the same process of grammaticalisation that underlies the parallel construction in the model language), at least in those cases where there is no evidence for a gradual process with intermediate stages (cf. Heine & Kuteva’s discussion (2005: 225) of the emergence of the Estonian indefinite article *üks*, lit. ‘one’, in literary translations, modelled on German *ein*). In the case of the Macedonian Turkish modal construction, it appears somewhat arbitrary whether one should regard the process as a mere extension of the distributional context and syntactic environment of the optative, or whether one might postulate the emergence of a genuine subjunctive as a new category of the verb. We might even go further and suggest that the so-called grammaticalisation of the relativiser/subordinator from an interrogative, as in the case of Macedonian Turkish *ne*, does not really involve the emergence of a new category at all, but rather the removal of environmental constraints on the interrogative itself. In its function

as a relativiser, as in its function as an interrogative, it continues to highlight a potential ‘gap’ in contextual knowledge, aiming at filling this gap through relevant, clarifying information; but it is no longer restricted to the question illocution, nor to the turn-taking context whereby the speaker outlines the gap and the hearer is expected to provide the clarifying information (cf. discussion of the grammaticalisation of Romani interrogatives to subordinators in Matras 1994: 181–185).

Clear-cut distinctions between increased frequency, extended contexts of distribution, and cross-category extensions may also be difficult to make. In Domari, the Indo-Aryan language of the Middle Eastern *Dom* peripatetics (‘Gypsies’), for example, adjectives precede the noun, historically at least, while in Arabic, the principal contact language, they follow the noun:

- (6) Domari:
- a. till-a zara
big-M boy
‘the big boy’
 - b. till-ī čōnī
big-F girl
‘the big girl’
- Arabic:
- c. l-walad l-kbīr
DEF-boy DEF-big.M
‘the big boy’
 - d. l-bint l-kbīr-e
DEF-girl DEF-big-F
‘the big girl’

Domari also has a predicative construction. Here, by contrast, the predicative adjective follows the noun (and is in turn followed by an enclitic copula/predicative marker form, sensitive to gender and number):

- (7) a. zara till-ēk
boy big-PRED.M
‘the boy is big’
- b. čōnī till-ik
girl big-PRED.F
‘the girl is big’

This predicative construction is often preferred when introducing nominal entities into Domari discourse, as it matches the word order of the Arabic counterpart construction:

(8) Domari:

- a. er-a zara till-ēk
 came-M boy big-PRED.M
 ‘the big boy arrived’ (lit. ‘the boy, being big, arrived’)
- b. er-ī čōnī till-ik
 came-F girl big-PRED.M
 ‘the big girl arrived’ (lit. ‘the girl, being big, arrived’)

Arabic:

- c. iža l-walad l-kbīr
 came.M DEF-boy DEF-big.M
 ‘the big boy arrived’
- d. iža-t l-bint l-kbīr-e
 came-F DEF-girl DEF-big-F
 ‘the big girl arrived’

Can this ongoing change be considered a case of grammaticalisation? The predicative construction is being extended to a wider context, as a result of which it is losing some of its morphosyntactic and semantic properties. In (8a-b), it is in fact no longer an independent predication, and the function of the ‘predicative’ marker is actually attributive (‘the boy, being big’ > ‘the big boy’). Such an increase in distribution will obviously lead to an increase in frequency as well.

On the whole, then, we accept Heine & Kuteva’s (2003, 2005) notion of ‘grammaticalisation’ modelled on an external source as a way to characterise contact-induced change that is applied to inherited material. The boundaries between individual aspects of the process — increase in frequency, polysemy as a trigger, the rise of new categories, and so on — may be somewhat fuzzy and vague at times, but they add up to a coherent whole, well in line with other grammaticalisation processes. There remain, however, three problems with the grammaticalisation model, which we wish to address in the following sections.

First, one of the characteristics of the grammaticalisation process is said to be its gradual development, through individual stages, until the replica comes to match the model completely in its function, distribution, and morphosyntactic properties. Note, for example, the ambiguity which the Domari predicative marker still possesses when attached to an attribute (‘is-big’ > ‘being big’ > ‘big’), or the various functions still covered by the Macedonian Turkish subjunctive/optative (‘that I go’, but also ‘[may I] go!’). This does not, however, rule out the possibility that bilingual speakers can and do produce replica constructions instantaneously, without going through any process of gradual modification of context, semantic meaning, and morphosyntactic properties.

In the following sections we ask what the status of such spontaneous bilingual creativity is, and how it can be accommodated along the model of contact-induced 'pattern' replication.

Secondly, we question the assumption of unidirectionality, and whether it is justified to treat cases that violate the unidirectionality hypothesis as exceptions to the model; perhaps the model might rather be adjusted to cater to such cases. These questions lead us, finally, to re-examine the mechanism of pattern-replication in language-contact situations, and to try to re-define the position of grammaticalisation within it.

3. MAT and PAT revisited

Our distinction between MAT, the replication of morphological material from the source language, and PAT, the replication of usage patterns (organisation, distribution, and the mapping of grammatical or semantic meaning) from a model language, has a tradition in contact linguistics, going back to terms such as Haugen's (1950) 'importation' versus 'calque', or Gołąb's (1956, 1959) 'substance' versus 'form', and on to Johanson's (1992) 'global copying' and 'partial copying'. Weinreich (1953) distinguished between borrowing from a 'source' language to a 'recipient' language, on the one hand, and change in the function of morphemes in a 'replica language' triggered by a 'model language', calling the latter type 'cases of convergent development'. The term 'convergence' has since been used occasionally to refer specifically to patterns of form:function mapping (cf. Heath 1984; cf. also Ross's 1996 use of the term 'metatypy' to convey a related notion), while the term 'convergence area' (Weinreich 1958) is widely employed with reference to a region in which cases of convergence are widespread among several different languages. The idea of languages sharing patterns figures perhaps most prominently in the historical-linguistic notion of substrate influence, where patterns of a native language are presumed to be mapped onto the linguistic-structural matter of a target language in a process of second-language acquisition. Substrate influence is sometimes seen as the origin of grammatical relations in pidgins and creoles (cf. Mufwene 1990, Holm 1988). The idea that the original language undergoes 'relexification' — i.e. retains its form:function mapping patterns but substitutes its structural matter or lexeme inventory with another (superstrate) one — might be seen as a mirror-image of the same notion (see Muysken 1981, 2000; Lefebvre 1993, 1998).

Disentangling the two types of processes, MAT and PAT, seems essential if one is to try and compare the cross-linguistic outcomes of contact-induced

change. Consider, for instance, Thomason & Kaufman's (1988: 74–76) well-cited Borrowing Scale. While consideration is given at various positions on the scale to categories such as 'function words', 'adpositions', or 'derivational morphology', it is not clear whether only matter replications are considered, or also patterns, and whether differentiating the two might have an impact on the position of a category on the borrowing scale. We expect the distribution of matter- and pattern-replication to be conditioned at least in part by the opportunities available to bilingual speakers to effect a convergence in components of their two languages. In order to define the contexts in which pattern-replication operates, we must therefore first identify these opportunities and constraints.

Some constraints may derive from the social attitudes of a community of speakers toward their languages. Ross (1996) on Papua New Guinea, and Aikhenvald (2002) on the Amazon, both report on communities in which there are strong social constraints against matter-replication, but where bilingualism is widespread and leads to significant changes and structural convergence. Pattern-replication may in these situations serve as a way of giving in to the pressure to organise clauses and phrases in both linguistic sets in the speaker's repertoire in a similar way, yet without overt similarity of phonological substance. There are other types of situations where such social constraints may be at work. Zuckermann (2003) describes the emergence of Israeli Hebrew as a process that was strongly influenced by conscious decisions on the part of language planners to coin lexical items using Hebrew roots and morphemes, but with implicit European (often Yiddish) lexical and grammatical semantics. This indicates that it is easier for speakers to explicitly attribute concrete phonological shapes and substances to a particular language than it is to consciously recognise more abstract patterns of ordering, agreement, or grammatical semantics as being language-particular. As a result, linguistic matter is more strongly embraced as an emblem of a language-particular identity (representing group-identity), while linguistic patterns appear more volatile.

Some structural constraints may also operate on the distribution of MAT and PAT. There are obviously some structural properties which, if borrowed, will inherently fall under pattern replication, such as changes in word order. Convergence in the domain of complex constructions will similarly entail pattern replication (though matter replication may appear in the use of conjunctions or correlatives, for instance). Consider the arrangement of the modal complement clause in Kurmanji, in the Neo-Aramaic dialect of Zakho (northern Iraq), in Arabic and in Domari (9–12):

- (9) Kurmanji:
 ez di-xwaz-im her-im mal-ê
 I PROG-want-1SG go.SUBJ-1SG home-OBL
- (10) Neo-Aramaic (Zakho):
 ana g-ib-ən āz-in l-bēsa
 I PROG-want-1SG go.SUBJ-1SG to-home
- (11) Arabic:
 ana biddī a-rūḥ ʕa-l-bēt
 I want.1SG 1SG-go.SUBJ to-DEF-home
- (12) Domari:
 ama biddī dža-m kury-ata
 I want.1SG go.SUBJ-1SG home-DAT
 ‘I want to go home’

The recurring structure is a personal pronoun, followed by the modal verb, followed by a finite main verb in the subjunctive, followed by the (dative) indirect object. The ‘pivotal’ features of the shared construction are thus the position of the subordinated predicate (as well as that of the other constituents), the finiteness of the main (embedded) verb, the absence of a conjunction mediating between the two clauses, the presence of a distinct subjunctive form of the main verb, and the oblique marking of the indirect object (albeit in different ways: through nominal case or through a preposition). The actual substance which encodes these morphosyntactic features — inflectional morphology — is typically more resistant to matter replication.

Another example of construction-oriented pattern-replication is possessive/genitive constructions. While we are not familiar with cases of matter replication of actual possessive/genitive markers, pattern convergence is not uncommon. Consider the following examples from the Balkans:

- (13) Albanian (Plank 2002: 165, citing Buchholz & Fiedler 1987: 418):
 Akademi-a e Shkenca-ve
 academy-DEF.F.SG.NOM ATTR.DEF.F.SG.NOM science-DEF.PL.OBL
 e Shqipëri-së
 ATTR.DEF.F.SG.NOM Albania-DEF.F.SG.OBL
 ‘The Albanian Academy of Sciences’ (=‘The Academy of Sciences of Albania’)

(14) Greek:

i Akaðemía ton Epistimón tis
 DEF.F.SG.NOM academy DEF.PL.GEN science.PL.GEN DEF.F.SG.GEN
 Elláðas
 Greece.F.GEN
 ‘The Academy of Sciences of Greece’

(15) Macedonian:

Akademija na nauki-te na Makedonija
 academy on sciences-DEF.PL on Macedonia
 ‘The Academy of Sciences of Macedonia’

Note that these three languages differ considerably in the morphological typology of their respective constructions. In Albanian, the definite article is postposed to the noun. The marker that functions as a connector between the individual nouns belongs to the set of attributive particles. It refers back to the head of the construction, with which it agrees in inflection (here: the F.SG. NOM article *e*), and indicates that the following noun is an attribute to that head.⁴ Each attributing (genitive) noun, in turn, is inflected for the oblique case, which is marked on its own (postposed) definite article. In Macedonian, too, the definite article is postposed. But here the genitive relationship between the nouns is expressed by means of an uninflected preposition, with a rather vague locational meaning. In Greek, finally, the definite article is preposed to the noun. The attributive (genitive) noun is marked for the genitive case, and its preposed article agrees with it in gender, number and case.

Despite these differences, however, the three languages share a general pattern. In all three, a marker separating each pair of nouns has properties that refer backwards: the Albanian attributive article agrees with the head, the Macedonian preposition specifies the position of the head (relative to the following noun), and the Greek article is inflected for the genitive (which indicates a relationship to a head). At the same time, the same marker also refers forwards: the Albanian article is attributive (and so indicates that an attribute follows), the Macedonian preposition sets up the relationship with the following noun, and the Greek article agrees with the following noun. The pattern ‘Noun+relationship marker+Genitive Attribute’ is the pivotal feature of the construction, and is present in all three languages.

Some categories seem to resist MAT but attract PAT. A good illustration is provided by tense/aspect markers. Matter replication of tense/aspect markers is quite rare.⁵ Pattern replication, however, is more frequently attested. Consider again an example from Anatolia and surrounding regions. Here,

several languages have grammaticalised prepositions into preposed progressive-indicative markers: Kurmanji *dî-bîn-im*, Western Armenian *gê-desn-em*, Neo-Aramaic *k-xâz-in / ko-ħoz-eno*, Persian *mî-bîn-am*, all PROG/IND-see-1SG ‘I see’, where the absence of the progressive-indicative particle signals the subjunctive (Kurmanji *bîn-im / bi-bîn-im*, Western Armenian *desn-em*, etc.) (cf. Chyet 1995). Even Levantine Arabic accommodates to this model, though without compromising its preposed person affixes: the indicative is marked by a preposed particle, as in *b-a-šūf* PROG/IND-1SG-see-Ø ‘I see’, contrasting with the absence of the particle in the subjunctive *a-šūf*. Another well-known example is the Balkan future particle, derived from a contraction of the verb ‘want’ (Greek *tha*, Romanian *voi*, Bulgarian *šte*, Romani *ka*, and so on).

Another category that appears to attract pattern replication, but not matter replication, is the definite article. In theory, at least, a function word such as a definite article can either be borrowed directly (i.e. imported as matter) or formed by functionalising an existing, inherited structure (i.e. by adopting a pattern). In practice, however, we are not familiar with any case of productive borrowing of definite article forms (ignoring fossilised articles, as in Spanish *alcalde* ‘mayor’ from Arabic *al-qāḏī* ‘the-magistrate’, and disregarding code-switching behaviour among bilinguals, who may occasionally insert a noun from their L2 together with its L2-definite article into L1 discourse). On the other hand, pattern replication is quite common with definite articles, and shared definite article features tend to cluster geographically, forming linguistic areas. This is the case in the Balkan languages Albanian, Bulgarian, Macedonian, and Romanian, which have all developed postposed definite articles based, at least as far as one can ascertain, on inherited structural material. Romani, an Indic language, developed a preposed definite article (M.SG *o < ov*, based on a demonstrative *ov*) through contact with Greek, and Sorbian, a Slavic language, developed a preposed definite article *ton/ta/to* (based on demonstrative pronouns) through contact with German (Löttsch 1996).

By contrast, there are categories for which both matter and pattern replication are well-attested. Conjunctions are one such category. Early Romani appears to have grammaticalised the interrogative *kaj* ‘where’ into both a relativiser and a factual complementiser ‘that’, and this form is continued in many present-day dialects of the language. Some dialects of Romani have subsequently borrowed a factual complementiser from their contemporary contact languages; we find Romanian-derived *ke*, Hungarian-derived *hodž*, Greek-derived *otí*, and more. Comparative (degree) particles are another example. In the Balkans, languages tend to converge in their use of a preposed, analytic comparative particle (Bulgarian *po*, Romanian *mai*, Albanian *më*); Romani

dialects often borrow comparative particles (using, for instance, Bulgarian *po*, Romanian *mai*, or Turkish *daha*). Pronominal systems having an inclusive/exclusive distinction often cluster geographically; additionally, some cases of matter replication of actual forms are attested (see Voorhoeve 1994: 661 on Austronesian loans in North Halmaheran languages of the north Moluccas in Indonesia, and Van der Voort 2004 on the borrowing of a Tupí-Guaraní form in Kwaza; see also Sakel 2005 on Mosestén). Prepositions may arise through grammaticalisation (for example, of location adverbs, as in Romani *and-* ‘in’, *opral* ‘above’, and more), or may be incorporated formally from the contact language (as in the case of Arabic prepositions such as *min* ‘from’, *ma^s* ‘with’, and more in Domari).

In some cases, the choice between MAT and PAT may be conditioned directly by the availability of structural resources in the replica language, allowing speakers to identify a match for the functional pivot of the construction. Thus the Sinti dialect of Romani (or German Romani) replicates the pattern of German verbal-particle use in (16), but not in (17); here the German particle *hin* itself is inserted:

- (16) a. Sinti Romani:
 me ker-au o vuder pre
 I make-1SG DEF.M door up
- b. German:
 ich mach-e die Tür auf
 I make-1SG DEF.F door up
 ‘I open the door’
- (17) a. Sinti Romani:
 me dža-u hin
 I go-1SG DIR
- b. German:
 ich geh-e hin
 I go-1SG DIR
 ‘I go [there]’

Thanks to its polysemy, German *auf* ‘on’ (cf. *auf dem Tisch* ‘on the table’) is easily translatable by the Sinti Romani preposition *pre* ‘on, above’ (cf. *pre tiša* ‘on the table’). A gradual, step-by-step grammaticalisation of *pre* from an adverb to a verb particle, as used in (16a), can be ruled out on semantic grounds, as there is no way to assign a semi-literal or even metaphorical interpretation to the contemporary German construction in terms of upward movement. We are dealing, therefore, with a loan-translation. With *hin*, by contrast, there is no

polysemy in the model, nor is there any Sinti Romani match for the directional preposition. It might be argued that *hin* is more abstract in German than *auf*, since it entails a presupposed knowledge of the direction and of the identity of the target. In any event, it is the absence of a match which triggers the borrowing of the actual form (MAT) into Romani.

In Macedonian Turkish, the relativiser *ne* is a grammaticalised interrogative ‘what’, a use triggered by the polysemy of its Macedonian counterpart *što* (similarly, Early Romani and many present-day dialects have *kaj*, from ‘where’, based on the polysemy of Greek *pu*). The Palestinian Arabic relativiser *illi*, by contrast, shows no polysemy and is not analysable semantically beyond its abstract operational role as a relativiser. Domari, which generally replicates Arabic clause structure and clause-combining strategies, here borrows *illi* directly:

- (18) a. Domari
 zara illi er-a xužoti
 boy REL came-M yesterday
- b. Arabic
 l-walad illi iža mbāreḥ
 DEF-boy REL came.M yesterday
 ‘The boy who arrived yesterday’

We can draw several conclusions from these examples. First, pattern replication cannot be discussed in isolation from other contact developments. PAT is partly predictable, in the sense that there are categories that cannot undergo, and others that tend not to undergo, any other kind of contact-induced structural change (though we can never predict with certainty whether or not contact will lead to change in the first place). On the other hand, PAT is often excluded when there is no available structure in the replica language which can assume the role of the ‘pivotal’ feature of the model construction. Haase (1991: 168–171) relates this to the degree of grammaticalisation of the model structure; but the examples we have provided show that the availability of polysemy in the model is a crucial factor in guiding the speaker toward finding a creative path within the replica language.

4. PAT and pivot matching

This brings us back to the issue of speakers’ creativity, and the communicative motivations that point speakers in the direction of pattern replication in bilingual discourse settings. Heine & Kuteva (2005: 34–35) rightly argue against

the view that speakers who change language in situations of contact are acting within a “kind of sociolinguistic ‘straightjacket’”, or as mere “imperfect learners” of a language, and suggest instead that speakers be regarded as actors who make creative use of language.

Studies of contact-related language change, while usually acknowledging the importance of sociolinguistic norms and constellations in motivating change (cf. Thomason 1997), tend largely to disregard aspects of actual bilingual linguistic performance at the discourse level (known as the study of ‘bilingualism’, and sometimes focusing on ‘codeswitching’ or ‘codemixing’, i.e. the alternating use of two languages in conversation). Indeed, we might even go as far as to say that among many typologists and historical linguists there is, to some extent at least, a reluctance to deal directly and explicitly with processes of communication in discourse, and a preference instead for interpreting processes of language change as dependent strictly upon the status of grammatical categories and structures (while at the same time taking for granted the impact of pragmatics on the shaping of categories).

We follow Croft (2000) in assuming that any type of language change will begin at the level of the individual utterance in discourse. It will then be subjected to an evolutionary-like process of natural selection, through which the extent of its successful propagation through all or part of the speech community will be determined. This is true of contact-induced change as it is of any other process of language change. In order to understand the triggers behind various mechanisms of change in situations of contact, we must therefore explore multilingual speakers’ motivations to adopt ad hoc solutions and strategies in response to the communicative challenges that face them when structuring individual utterances in discourse. Our agenda is therefore to trace the seeds of pattern replication; we propose to search for them in the motivations which speakers display for adopting utterance-level solutions to the communicative challenges of multilingual settings.

Some authors have argued for a direct connection between convergence in the sense of gradual change, and ‘interference’ in the sense of the abrupt creation of new structures by bilingual speakers (see e.g. Rozencvejk 1976, Silva-Corvalán 1994, Clyne 2003: 79–80). In the formal perspective of the Matrix Language Frame model (Myers-Scotton 1993, 2002), structural convergence is regarded as the gradual but incomplete turnover of the Matrix Language, affecting in the first instance the rules of syntactic arrangement and assignment of grammatical meaning (see e.g. Savić 1995 on the adoption of English morphosyntactic frames in the Serbian of second-generation immigrants in the United States). This blend of grammatical morphemes (at the level of matter)

from the L1, and rules of syntactic arrangement and assignment of grammatical meaning (pattern) from the L2, is defined as a ‘composite Matrix Language’ (see Bolonyai 1998). The idea is that the bilingual speaker, in changing the structure of one of the languages, is actually employing two languages simultaneously, within the same utterance, without necessarily using matter from both source languages. This is what Bolonyai (1998: 23) refers to as “bilingual speech appearing in the disguise of monolingual speech”, while Myers-Scotton (2005: 271) states that “convergence ... has all the surface-level forms from one language, but with part of the abstract lexical structure that underlies the surface-level patterns coming from another language”.

We adhere to the view that change is instigated at the level of the individual language user, where it initially takes the form of an innovation at the level of the individual utterance. In this connection, we should note whether a) the innovation comes about as a result of the language learner’s attempt to be creative in a target language (and so to re-shape structures of the target language, aiming to extend the range of his/her expressive ability), whether b) the speaker is accommodating to an external model by re-shaping structures of the first language, or whether c) balanced bilinguals are levelling the structures of both languages. We shall argue below that the direction of the process is not crucial to an understanding of the actual replication mechanism itself. Along with the overall sociolinguistic circumstances, the direction of the process does, however, have a bearing on the chances for successful propagation of an individual innovation, and hence on the likelihood that bilingual communicative behaviour will result in ‘language change’ in the conventional sense of the notion. Thus, learners’ innovations may result in long-term change, but only in situations in which the learners constitute a large enough collective and the process of language acquisition never actually ‘catches up’ with the model or native form of the target language — the classic ‘substrate influence’ scenario. Replication of an external model will only lead to change if normative control within the speech community is relatively lax and flexible enough to allow a drift toward regularisation and acceptability of the new imported structures. Thus, we distinguish between language convergence, as an innovation triggered at the level of communication between a speaker and a hearer, and the propagation of innovations leading to language change.

Consider the following, attested example of a trilingual child, brought up in England with German (the mother’s language), Hebrew (the father’s language), and English.⁶ Strict separation of the languages is maintained, reinforced considerably by the fact that the parents live in separate households. Around the age of four, the child acquires a new construction in German — the politeness

term of address *Sie*. Recall that the German second-person polite form *Sie* is identical to the 3PL pronoun *sie*, and carries the same 3PL agreement marker on the verb. The context in which the child acquires this construction is a game which he plays with his mother, in which the child is a storekeeper and the mother is a customer coming to the shop, who addresses the shopkeeper in the polite form when enquiring about certain products (*haben Sie X?* ‘do you. POLITE have X?’). The child’s acquaintance with the German politeness form is, at this stage, limited to this particular context. Strictly speaking, therefore, he does not acquire a politeness marker as such, but a construction that is employed in a particular slot within the pre-defined pattern of speech activities that characterises the game ‘shop’.

Having acquired this new construction, the child has thus extended his overall repertoire of communicative competence. In the present case, this is a more accurate description than to suggest that he has learned a new ‘structure’, since he is already familiar with the form of the 3PL pronoun and agreement marker; it is only the use of the structure to refer to the addressee under strictly defined communicative circumstances that is novel to him. The crucial event for our discussion is when the child is spending time with his father, and a similar game is played in Hebrew. We should clarify at this point that the ‘generic’ shop-game, from the child’s perspective, is played with the mother, and that it is in her household that the child has a range of accessories, including a toy counter and till, to facilitate the game. The shop-game in the father’s household is thus a ‘replica’, in several respects. Having enriched his linguistic-communicative repertoire as part of mastering the shop-game, the child is eager to repeat the acquired pattern of activity associated with it. This includes the organisation of the question which he, now playing the role of the customer, puts to the storekeeper, this time the Hebrew-speaking father. Hebrew lacks a politeness pronoun. The child replicates the German construction by employing a Hebrew possessive construction in the 3PL:

- (19) a. Child’s construction in Hebrew:
 yeš la-hem tapuxím?
 there.is to-3PL apples (lit. ‘Do they have apples?’)
- b. German:
 hab-en Sie Äpfel?
 have-3PL you.POLITE/3PL apples
 ‘Do you have apples?’

The formal process involves no attempt to replicate the German possessive construction per se; note the striking typological differences between the

Hebrew and the German constructions. Rather, the child is picking up on a single — albeit ‘pivot’ — feature of the German construction, namely the use of the 3PL. This is employed as a term of direct address, or listener-deixis, and so in effect is a case of de-grammaticalisation (from anaphora to deixis).⁷ The process is spontaneous and abrupt, not gradual. It is, of course, unlikely to lead to language change, since it is unlikely to be propagated among a community of speakers of any variety of Hebrew. We argue, however, that it is precisely the sociolinguistic limitations, and not the structural character of the replica construction, or the fashion in which it emerged (spontaneously), that are the crucial factors which prevent propagation and hence change. Under different circumstances — given, hypothetically, a close-knit community of children, with the same languages in their repertoire, lax norms imposed by the parent generation and absence of media or literacy and hence no interference with the children’s own linguistic creativity, and a group that grows up together, forms partnerships within the group, and ultimately raises a generation of their own children — given these circumstances, successful propagation of the new construction throughout the community, and thus long-term language change, could not be ruled out. Indeed, we have every reason to assume that contact-induced language change often begins under precisely such conditions as outlined in our hypothetical scenario.

Consider another example from our own observations. A German adult with only a very basic knowledge of English is visiting England, and is justifying the fact that she had been unable to reserve a place on a holiday caravan site in advance, since the site had been closed. She addresses the caretaker in English:

- (20) a. Tourist’s English:
It was to.
- b. German:
Es war zu.
it was to
‘It was closed.’

Here again, the speaker’s creativity is spontaneous, and motivated by the requirements of the communicative situation. Rather than refrain from communication, the speaker makes use of the full range of constructions available in her repertoire. She is conscious of accommodating to the constraints of the English-language setting and so chooses words (phonological substance) which she is confident exist in English, just as the child in the previous example is conscious of using only structures (matter) that are identifiable as Hebrew in

the setting in which Hebrew is the expected language of interaction. In order to reconcile the two — the need to make use of one's full repertoire of communicative constructions, while at the same time adhering to the expectations of the language-particular setting — the speaker turns to linguistic creativity, identifying a pivotal feature of the model construction, then searching for an appropriate matching pivot, and replicating the features of the model. Here, the polysemy of the German model *zu* 'to; closed' is the basis for the replica; formally speaking, the use of an English preposition as an adjective is, once again, a case of de-grammaticalisation, or a violation of the unidirectionality prediction.

The assumption which the speaker makes regarding the polysemy of English *to* is of course erroneous, and this leads us to a further condition for the successful propagation of an innovation of this kind, namely its acceptability to the listener. It is clear that in this example, as before, there is no chance of successful propagation and so no chance of language change. But we argue again that the reason for this is not the spontaneity of the emergence of the construction, nor the fact that it is not in line with the predicted directionality of grammaticalisation, but strictly the sociolinguistic circumstances.⁸

At this stage we would like to return to the question of pivot-matching. We have identified the search for a corresponding pivot — rather than a process of grammaticalisation — as the most basic step in cases of pattern replication. What, then, are the factors that lead speakers toward identifying potential pivots in the replica language? The most powerful force in 'pivot-matching' appears to us to be the semantic potential of a structure in the replica language to cover the (lexical or grammatical) semantics represented by the model. The inspiration or clue which points the speaker in an appropriate direction is the polysemy or polyfunctionality of the model. This search for potential clues leads the speaker quite naturally and frequently to more concrete, semantically 'basic' structural elements within the replica language, rather than to more abstract ones. This has to do with the nature of the polysemy in the model. The model construction is likely to represent both an abstract and a more concrete meaning (cf. German *auf* as a preposition 'on', and as a verbal particle in the expression *aufmachen* 'to open'). If polysemy is the inspiration for identifying a potential pivot in the replica, and if the construction that is to be replicated involves the more abstract function of the model structure, then speakers will naturally be drawing on the more concrete meaning of that structure in order to find a matching pivot. Grammaticalisation or replica grammaticalisation, gradual or spontaneous, is therefore frequently the outcome. But speakers' choices are not necessarily limited to drawing on more concrete semantic

meanings in the replica language. We have seen how anaphoric pronouns are chosen for deictic functions, how prepositions are chosen to serve as adjectives, and how a particular pivotal role may be assigned in different languages to different highly-grammaticalised elements such as attributive particles, definite articles, and prepositions (as in the case of the Balkan nominal attributive constructions).

These cases suggest that a further force is active in pivot-matching, namely the morphosyntactic potential of structures in the replica language to take over functions that are covered by the model. Consider the following example involving a Russian immigrant in Israel. The man is part of a small crowd that is waiting for the lift to arrive at a particular level at Ben-Gurion International Airport in Tel Aviv. Another man — a native speaker of Hebrew — approaches the crowd and, waiting together with the others, asks whether the lift is working, alluding to the delay in its arrival. His remark is formulated as a question, but he does not seem to be addressing any particular person within the crowd. The Russian immigrant (who becomes identifiable as such only at this stage, by his accent, when he reacts to the question) turns to the man and asks whether he was addressing him:

(21) Russian immigrant's Hebrew:

ata šo'él ecl-i?
 you ask.M at-1SG
 'Are you asking me?'

Native Hebrew usage would mark the direct object 'me' with the preposition *et/ot-*; the preposition *ecl/ecl-* is reserved in Hebrew for locative possession.

(22) Hebrew:

a. ata šo'él ot-i?
 you ask.M DIR.OBJ-1SG
 'Are you asking me?'
 b. ecl-i
 at-1SG
 'with me / in my possession / chez moi'

In Russian, however, both relations — the pronominal direct object, and the object of both possession ('I have') and locative possession ('with me/ chez moi') — may be expressed by the same construction, involving the preposition *u* 'at' and the genitive case:

- (23) Russian:
- a. vy (u) menja sprašyvaite?
 YOU.PL at me.GEN ask.2PL
 'Are you asking me?'
 - b. u menja
 at me.GEN
 'with me / in my possession / chez moi'

Precisely what, then, in the Russian model is being replicated in the immigrant's Hebrew utterance? The speaker, not being completely fluent in Hebrew, is in need of a morphosyntactic device to express the direct object. Possibly, his difficulty in expressing a pronominal direct object derives from the irregularity of the relevant Hebrew paradigm, which involves the preposition *et* with definite nominal direct objects, but the inflected prepositional base *ot-* with pronominal objects. In any event, the speaker has difficulty in identifying or retrieving the native Hebrew construction. Hence it is necessary for him to be creative and draw on some pre-existing model in order to construct a Hebrew structure that would be functional in this position in the utterance, and thus functional in this position in the communicative interaction. He does this by drawing on the Russian model, where both semantic case relations, that of pronominal direct object and that of locative possessor, are mapped onto the same structure. It is this model — the mapping of semantic relations — that is being replicated in his Hebrew. The pivot in this case is a semantic map, or a portion of a semantic map, approached from the perspective of the locative-possessive semantic case relation.

The procedure thus involves the making of abstract underlying assumptions about the grammatical operations of the language. Once again, we argue that speakers' creativity is the underlying process in pivot-matching; and that the motivation for this creativity is the need to perform effectively in communicative interaction while adhering, on the one hand, to the rules about the selection of clearly-identifiable phonological substance (matter) from the language that is appropriate in the particular context, while at the same time exploiting constructions that are available to the speaker in his/her entire repertoire of linguistic-communicative structures.⁹ It is this underlying motivation, and the similarities among the creative processes that arise from it in different types of situations, which in our opinion justify examining cases of diachronic change alongside cases of learners' and bilinguals' spontaneous performance.

The replica construction may contain certain features that cannot be compromised. This means that there are morphosyntactic constraints in operation, hence a need to 'accommodate accordingly' (Matras 1998b; cf. example 4),

rather than just to ‘grammaticalise’ (cf. Heine & Kuteva 2005: 81, cf. example 5). Consider, once again, the trilingual child referred to above. From school age onwards, his principal language of interaction outside the home is English, which influences many of his constructions in the other languages. Rather consistently, from the age of around 5 onwards, he employs the following for ‘I am cold’:

(24) Trilingual child’s Hebrew:

ani kar
I cold.M
‘I am cold’

(25) Hebrew:

kar l-i
cold to-1SG
‘I am cold’

(26) Trilingual child’s German:

ich bin kalt
I am cold
‘I am cold’

(27) German:

mir ist kalt
me.DAT is cold
‘I am cold’

Strictly in terms of grammaticalisation theory, one might argue that the predicative constructions of Hebrew and German here undergo an extension of their distributional context and hence a semantic extension (and extension of grammatical meaning). In both languages, the constructions created by the child for ‘I am cold’, namely (24) and (26) respectively, are indeed grammatically possible, but they have a different meaning, namely that the speaker regards himself as a cold object (as in ‘my food is cold’), rather than as the experiencer of a cold feeling. This, however, would presuppose familiarity with the construction that is used in such contexts to refer to the body as an object. In the case of the child in question, we are familiar with his range of experiences and means of linguistic expression, and we have no evidence for any active use of such constructions, nor for any real-life experiences involving such (rather odd) abstractions of the human body. On the hierarchy of semantic relations as used in actual communication, it is clear that ‘feelings of the body’ are much more prominent than ‘analytic comments about the body as an object’. In other

words, the particular construction selected by the child is not one that is available in his repertoire of either Hebrew or German.

What *is*, of course, available is the morphosyntactic construction of an adjectival predication, and it is precisely this (abstract operational) structure that is selected as a pivot to express the feeling of cold, based on the English model. In the child's German (26), the construction closely resembles the English model, and follows the rules of default adjectival predications in German (with the subject in the nominative case, rather than the dative-subject construction used for 'I am cold'). In his Hebrew, the construction produced by the child (24) lacks a copula, again in line with the rules for the formation of adjectival predications in Hebrew. The speaker's creativity, we conclude from this, is constrained by the need to accommodate to a series of rules that apply to the structure selected as pivot in the replica language. On the other hand, creativity is not limited to drawing just on concrete and fully transparent (in terms of real-world representation) semantic meanings as pivots; in order to replicate model language constructions, speakers may also select abstract morphosyntactic operations as pivots.

We turn finally to a third force that appears to us to be marginal, and yet is attested in the pivot-matching process: phonological similarity. Consider the following example, from a different bilingual child, also a 7-year-old living in England who is exposed to German in the home:

- (28) Bilingual child's German:
 Er ist grösser denn mir.
 he is bigger PART me.DAT
 'He is bigger than me'
- (29) German:
 Er ist grösser als ich.
 he is bigger than I.NOM
 'He is bigger than me'

The selection of the dative *mir* (in (28)) may be motivated by its morphosyntactic potential as a marker of the oblique case and as the form that tends to follow prepositions in German (though we assume that both the morphosyntactic and the phonological similarities with English *me* do play a role). Arguably, then, there is here an extension of dative *mir* from the form of the prepositional object to the form of the object of comparison. In the case of *denn*, we have a shift from a modal particle to a preposition of comparison, and so, it may be argued, a case of 'de-grammaticalisation'.

The semantic or morphosyntactic motivation for selecting the German modal particle *denn* is not entirely obvious, however. Standard German *denn* is used in this environment only in formal and literary constructions, normally to avoid repetition of the comparative preposition *als* where the latter is employed in the meaning ‘as’ (cf. *er war erfolgreicher als Lehrer denn als Polizist* ‘he was more successful as a teacher than as a police officer’). We can safely assume that the child is unfamiliar with such usages of *denn*. The only meaning of *denn* that is accessible to him is that of a modal particle (*was hast du denn gemacht?* ‘So what did you do?’). There may be some confusion, however, between *denn* and German *dann*, a temporal deixis particle (cf. *und dann ...* ‘and then’), as well as between English *then* and English *than*. This would lead to a pool of expressions (*denn/dann* in German, *then/than* in English) that are regarded as roughly equivalent. If this is the case, and German *denn/dann* can replicate English *then/than*, then it follows that German *denn* can replicate English *than*. But since there are practically no contexts of overlap between English *than* and either German *denn* or *dann*, nor between English *then* and *than*, it appears that the primary motivation for equating the forms *denn* and *than* is their phonological similarity.

5. Conclusion

Our point of departure was the motivation on the part of speakers to adopt pragmatic solutions to problems of structuring utterances in discourse, in bilingual settings, and the possibility that, under certain sociolinguistic conditions, such pragmatic solutions may become regularised and lead to language change. Bilingual speakers, we have argued, are sometimes faced with the necessity of fully exploiting the potential of their entire (=bilingual) communicative repertoire, irrespective of the social constraints that limit the selection of structures to just one particular set (= one particular ‘language’) in specific communicative contexts. At the same time, speakers are obliged for reasons of prestige and/or successful communication to respect these social constraints. In order to overcome such constraints, speakers seek a license to employ constructions from one set — we call this, following Weinreich, the model language — in contexts of use reserved for the other set — the replica language.

The procedure is to replicate the abstract organisational pattern of the model construction using suitable elements in the replica language. This procedure, which we have called pattern replication or PAT, thus operates under the constraint of the exclusion or avoidance of direct replication of matter (or

MAT) from the model language, and hence under the constraint to respect the overt structural coherence of the replica language as the language of the current communicative interaction. The mechanism for pattern replication is to identify a pivotal feature in the model, and a matching pivot in the replica language. As stated above, we regard this as an export of constructions from the model language into the replica language, rather than an import. The speakers are not trying to fill a 'gap' in one of their linguistic systems. Rather, in the first instance, they attempt to avail themselves of constructions that are part of their total repertoire irrespective of the setting of the interaction and the identity of the chosen language of interaction. In order to do this, speakers turn to the creative process of pivot-matching.

Pattern replication and pivot-matching are therefore language-processing phenomena that hinge on full access to a repertoire of abstract mental processing operations of language, coupled with the observance of social constraints on the selection of concrete linguistic matter (the phonological substance) in particular communicative settings. Pattern replication is a functional phenomenon in the first instance, one that differs from matter replication or MAT in taking into account the social constraints on importation of matter. To some extent, it is even possible to predict which categories will be affected by which kind of process, and under which circumstances. In our model (see Figure 1 above), the first level of differentiation under structural replication in bilingual settings is therefore that between PAT and MAT.

Quite often, pattern replication results in the taking on of a more abstract meaning by the structure that is selected as a pivot to match the model construction. This may result in the creation of a new category, in the extension of the structure's distributional context, or in an increase of its frequency. Such processes are known as 'grammaticalisation'. They contribute to pivot-matching by exploiting existing matter to replicate an abstract pattern from the model. Thus, they operate in a way that is entirely in line with the objective of pattern replication. We have not discussed gradual grammaticalisation at length, but we accept Heine & Kuteva's (2005) position that grammaticalisation may occur in stages. The fact that some replica constructions show only partial overlap with the model confirms the gradual progression of grammaticalisation through stages. However, grammaticalisation may also be spontaneous and abrupt, drawing in a similar way on the pivot's semantic and morphosyntactic potential, but with no gradual transition between the concrete functional meanings of the structure in question. For methodological reasons, it is of course difficult to access data on the spontaneous emergence of constructions which have led to diachronic change. It is just as difficult to make secure predictions about the

likelihood that attested spontaneous cases of contact-induced grammaticalisation in contemporary language use will ultimately lead to diachronic change. The argument for a link between spontaneous grammaticalisation and diachronic change remains, therefore, an analytical-theoretical one. But the spontaneous creativity of bilingual speakers in discourse interaction remains, in our view, the logical setting in which contact-induced language change emerges, and we have therefore attempted to account for the processes of such change as rooted in the actual communicative performance of bilinguals.

In this regard, it is justifiable, and indeed necessary, in our view, to take into account data from various types of bilingual situations, including both fluent bilinguals, adults as well as children, and second-language learners. Both of these types of speakers pursue similar discursive strategies in the process of convergence. They aim at behaving 'correctly', overtly observing the communicative norms by selecting matter items from just a single component language of their repertoire, namely the one that is recognised as appropriate in the respective situation/context. At the same time they draw on other component languages of their repertoire in search of models for the mental organisation of a construction.¹⁰

Finally, we propose that, although grammaticalisation plays an important role as a useful process in pivot-matching, it is not the only option that is open to bilinguals to express their creativity in pivot-matching. First of all, categories are not just added to the inventory of the replica language, but may also be lost. Such is the case, for instance, with the reduction and, in some varieties, disappearance of the definite and indefinite article in dialects of Romani in contact with Polish and Russian (cf. Matras 2002: 96); this is due to the replication of a pattern in which the pivotal feature is the contextual, rather than formal, marking of the definiteness status of the noun. In other cases, entities that are more abstract and so arguably higher on the grammaticalisation hierarchy take on more concrete meanings, and so arguably move down the grammaticalisation scale, or are de-grammaticalised; we witnessed this in the case of an anaphor used as a deictic, and a preposition used as an adjective. We regard such instances not as exceptions to the model, but as inherent components of it, for they follow exactly the same functionality as grammaticalisation processes: they are the outcome of a pivot-matching procedure, aimed at replicating abstract organisation structures from one language within the permissible selection of matter from the other. Parallel to grammaticalisation, therefore, our model also includes a pivot-matching track that is not constrained by the typical features of the grammaticalisation process. Whether or not these, or any, spontaneous strategies adopted by bilinguals stand a chance of being propagated

successfully, and whether they will consequently lead to language change, is dependent upon the sociolinguistic conditions of the speech community — issues like normative control, prestige, and exposure to structural variation will have a crucial effect. These, however, are factors which are independent of the mental processing procedure of pivot-matching itself. We therefore understand the entire model as a depiction of the potential for language change, since it represents the potential for speakers' creativity in communicative interaction.

Notes

* The paper draws on earlier work by Matras (1998a, 1998b and subsequently) on this topic, and on our joint discussions in the framework of the research project on Language Convergence and Linguistic Areas at the University of Manchester (August 2003-August 2006). We acknowledge support from the Arts and Humanities Research Council (AHRC) for this project (grant number B/RG/AN4725/APN16320, awarded to Yaron Matras). Aspects of the argument contained in this paper formed part of presentations by Yaron Matras & Jeanette Sakel at the Annual Meeting of the Linguistics Association of Great Britain (August 2005), by Yaron Matras at the universities of Cologne, Düsseldorf, and Hamburg (June 2005) and at the Annual Meeting of the Linguistics Association of Great Britain (September 2004), and by Jeanette Sakel at the workshops on Language Contact in Romance (University of Bremen, May 2005) and on Lexical Borrowing (Max Planck Institute for Evolutionary Anthropology, June 2005). We are grateful to the audiences of these presentations for comments and questions. We are especially grateful to Bernd Heine, Tania Kuteva, and Jochen Rehbein for stimulating discussions on the topic of this paper.

1. The Functional Pragmatics tradition (cf. Ehlich 1994, Redder 1990, Rehbein 2001) postulates the notion of 'field transposition' — the transposition of a structure from a particular functional field of expression, where it triggers a particular type of mental processing procedure, to a different field — as an alternative to the mainstream typological notion of grammaticalisation. Typical 'fields' are the symbolic field (where lexical elements act as symbols of reality), the pointing or deictic field (where elements point within a perceptual space), the operative field (whose structures trigger processing operations on other linguistic expressions), the steering field (responsible for directing hearer-sided processing operations), and others. Typical transpositions involve movement from the symbolic field and deictic field into the operative field, although, unlike grammaticalisation theory, the direction is not predetermined; cf. Rehbein (2001) on the transposition of (operative) 3_{PL} anaphors in German into the deictic field, where they come to serve as politeness markers of the 2_{SG/PL} (*Sie*).

2. Weinreich (1953: 40), however, states only that "[in] Silesia, the identification of the third person plural of the local Polish dialect ('Wasserpölnisch') with the equivalent category in German has led to the unexpected use, completely unknown in Polish, of the third person plural for polite address (e.g. *dokąd idą?* = *wohin gehen Sie?*)". The quotation appears in Heine & Kuteva (2003: 539), though the example is omitted. Note that Weinreich's Polish

example does not actually contain a pronoun, but merely the 3PL conjugation marker. It is possible, of course, and indeed likely, that this usage is accompanied in this dialect by a 3PL pronoun, functioning as a 2PL politeness form, but such usage is not directly mentioned. In any event, it is noteworthy that 'grammaticalisation' of an anaphoric (3rd person) pronoun to a deictic (2nd person) pronoun would actually run counter to the expectation of unidirectionality, which envisages promotion from more concrete categories (such as situational deixis) to more abstract categories (such as discourse-bound anaphora).

3. According to Heine & Kuteva (2005: 100–102), the fact that the replica category is often less grammaticalised than its model, and that sometimes intermediate stages may be observed, supports the view that a gradual grammaticalisation process (rather than an immediate copying of meaning or loan-translation) is involved. For intermediate uses of the Macedonian Turkish relativiser *ne* see Matras (1998a).

4. Spencer (2004) questions the status of this particle, and compares it to the 'double-case' morphology of the Hindi genitive, which also agrees with the head while attaching to the oblique attribute (though word order here is a mirror-image of the Albanian construction). Another useful comparison is the Kurmanji *izafe* construction. Here, the head is followed by an *izafe* particle which agrees with it (*mal-a min* 'house-F me' = 'my house'). A second attribute is introduced by a secondary *izafe*, which refers back to the head (*mal-a min-e mezin* 'house-F me-F2 big' = 'my big house').

5. Romani has incorporated Greek-origin tense/aspect markers, but uses them as productive derivational markers that attach to borrowed verb stems, and not strictly in their original function as tense/aspect markers. Some Romani dialects of the Balkans adopt Turkish verb inflection on a wholesale basis, but use it only with verbs borrowed from Turkish. So-called aspectual markers are borrowed from Slavic languages into dialects of Romani, and from Greek into dialects of Aromanian (Vlah); but these are in fact derivational aktionsart markers. Domari incorporates Arabic auxiliaries (with their Arabic inflection), including *kān* 'was', which is an aspectual modifier; but this remains an auxiliary, not an uninflected marker. Berbice Dutch Creole (Kouwenberg 1994) has a tense marker borrowed from Ijo, and an aspect marker derived from Dutch.

6. Matras's observations, 1999–2004.

7. We consider so-called 'third person pronouns' to be anaphoric, in the functional sense, and second-person pronouns to be deictic. For a functional-pragmatic analysis of the use of (third person) anaphora for (deictic reference to) second persons, exemplified by German *Sie*, see Rehbein (2001).

8. Here we distinguish, once again, between the initiation of a process of grammaticalisation, and the propagation of that process. The former involves the mere functional-semantic adjustment of a structure, and can be spontaneous, as in our example. The latter involves a prolonged, diachronic dimension, which is absent in our example.

9. This point has been left unemphasised in most recent approaches to structural convergence or contact-induced grammaticalisation, though Haase (1991) refers briefly to speakers' motivation to make use of the full range of structures of both of their languages.

10. A member of the audience at the Annual Meeting of the Linguistics Association of Great Britain (Cambridge, September 2005) questioned this integrative approach, comparing the fluent bilingual to a swimmer with a particular style, and the learner to a non-swimmer wading through shallow water. We follow this metaphor, and argue that in both cases, our interest is in the functionality with which individuals develop strategies in order to cross water. By extension, both the fluent bilingual and the second-language learner are attempting to communicate while adhering to overt norms, on the one hand, and making use of their full communicative repertoire, on the other.

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