TOWARDS A TYPOLOGY OF CONTACT-INDUCED CHANGE QUESTIONS, PROBLEMS AND THE PATH AHEAD

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Abstract

The fields of linguistic typology, contact linguistics and historical linguistics frequently interact with one another and each draws on the insights gained in the others. To date, however, there is no effective and systematic cooperation between these subdisciplines, no database comparing the typological distribution of features with common outcomes or mechanisms of internal change and the results of contact-induced change. Seeking to lay the foundation for just such a cooperation, this paper outlines and critically discusses the necessity, advantages and inherent limitations of a typology of contact-induced change and how it may be used to better understand language change and language contact. It suggests that a database similar to WALS or Grambank, enriched with extra-linguistic information, would be a suitable starting point for such an endeavour. At the example of contact-induced morphosyntactic alignment change, some of the concrete issues of compiling a minimal dataset for one change are illustrated and the potential for typological insights highlighted.

Résumé

Les domaines de la typologie linguistique, de la linguistique de contact et de la linguistique diachronique interagissent fréquemment les uns avec les autres et chacun s'appuie sur les connaissances acquises par les autres. Jusqu'à ce jour, cependant, il n'existe pas de coopération efficace et systématique entre ces sous-disciplines, ni de base de données comparant la distribution typologique des traits avec les résultats communs ou les mécanismes de changement et les résultats des changements induits par le contact. Afin de poser les bases d'une telle coopération, le présent article expose et examine de manière critique la nécessité, les avantages et les limites inhérentes d'une typologie des changements induits par le contact et la manière dont elle peut être utilisée pour mieux comprendre les changements linguistiques et le contact entre les langues. Il est proposé qu'une base de données similaire à WALS ou Grambank, enrichie d'informations extra-linguistiques, serait un point de départ approprié pour une telle entreprise. L'exemple du changement d'alignement morphosyntaxique induit par le contact illustre certains des problèmes concrets posés par la compilation d'un ensemble minimal de données pour un seul changement, et met en évidence le potentiel d'aperçus typologiques.

[French]

1. INTRODUCTION

Like any other science, linguistics has developed a number of subdisciplines over time, some of which are younger than others. The study of sounds, forms and meanings and the way in which they change has been around since at least the early nineteenth century; other disciplines have arisen

later, either because they rely on the data and insights gleaned in the older disciplines and could not have come up without them (so, for instance, typology and contact linguistics),[1] or because they rely on more recent technological or intellectual advances (e.g. psycholinguistics, computational linguistics, neurolinguistics).

Another rather unfortunate parallel is the fact that these different subdisciplines do not necessarily and systematically cooperate with one another and that thus the potential for important insights into all pertinent disciplines is diminished. For the 'younger' disciplines in particular, the absence of systematic interaction with other approaches and/or data and the subsequent lack of resources impede progress. A concrete example of this issue can be found at the intersection of two of the above-named fields, linguistic typology and contact linguistics, both of whose modern forms as a separate discipline date to the early to middle twentieth century, at least for the Anglo-American sphere of influence which in many respects dominated linguistic thinking in the latter half of that century. The specific dating depends on which seminal publications are viewed as the milestone for the field; for the present purpose, Weinreich ([1953](#)) and Greenberg ([1966](#)) are taken to be the key texts for contact linguistics and typology, respectively. Both disciplines deal with relationships between languages, albeit from different vantage points: typology seeks to establish elements, features and structures that are common to all or certain subsets of languages and the implicational relationship between the occurrence of such elements (features, structures) and others in any given subset; contact linguistics, by contrast, considers the relationship between two or more languages and the influences they have had on one another on the phonological, morphological, lexical, syntactic, etc. level. In using data and insights from the various nuclear branches of linguistics (phonetics/phonology, morphology, syntax, etc.), and owing to their close relationship with historical linguistics and language change—by which both are informed and which, in turn, they inform—the two fields share a broad common base.

While there is some acknowledgement of typological insights in the study of language contact, a larger scale typological approach to contact-induced changes is as yet not available. In other words, while individual studies of specific contact scenarios do (and should) consider whether certain proposed changes and structures are typologically plausible, no study, database or framework exists that can elucidate whether a particular kind of contact-induced change is well-attested in a given set of circumstances (and thus plausible), less well-attested (= less plausible) or unattested (= least plausible).[2] Such typological and comparative insights would, of course, be valuable in themselves in providing an overview of what aspects of language are more or less readily changed through contact; additionally, they would serve as a useful tool for deciding whether any given change is more or less likely to result from contact influence.

This is the point of departure for this paper. It seeks to critically discuss the questions and problems underlying a typology of contact-induced change, what specific advantages such an approach might have, and what its limitations are. To give a clearer, more practical perspective, one particular type of contact-induced change—changes in morphosyntactic alignment—is going to be considered as a case study to illustrate the more general points.

After this introduction, Section 2 discusses in some more detail the different goals and remits of linguistic typology and contact linguistics, touching on some definitional issues and assumptions as well as outlining in what way one field might benefit the other. Following on, Section 3 draws on the

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[1] There are, of course, pioneering works in these disciplines dating to about the same time as the development of Neogrammarian perspectives on historical linguistics, e.g. Schmidt ([1872](#)); Schuchardt ([1885](#)); von Humboldt ([1836](#)). While in many ways these studies set the ball rolling, the contact linguistics and typology of the 20th and 21st centuries have developed on the basis of later work.

[2] See, however, the STARFISH project at the University of Konstanz (PI George Walkden) and the GramAdapt project at the University of Helsinki (PI Kaius Sinnemäki) which are working on closely related notions. At an even larger scale, the problem applies to historical linguistics as a whole. Types of changes for the different nuclear branches are well-known and described, but there is no readily available empirical work on which changes occur when and under what circumstances. This is, however, another kettle of fish that is best treated separately.

benefits outlined in the previous section and on rationales proposed for similar projects in other disciplines to detail explicitly the purpose of developing a typology of contact-induced language change; Section 4, by contrast, critically discusses the inherent limitations of any such typology, both from the perspective of extant studies and data as well as on a general, conceptual level. Illustrating the foregone discussion with specific data, Section 5 takes the example of morphosyntactic alignment change as a case study, showing both the dearth of readily available information in the scientific literature as well as the necessity of pursuing a typology of such changes. Finally, Section 6 summarises the findings of this paper and makes practical suggestions for the path ahead, towards a typology of contact-induced change.

2. TYPOLOGY AND CONTACT LINGUISTICS: SOME PRELIMINARIES

Before exploring the purpose and limitations of a typology of contact-induced change, it will be instructive to revisit briefly the two fields in question, typology and contact linguistics and review their inherent goals and intersections. This definitional exercise will help to clarify the approaches to those fields taken here and to avoid misunderstandings later on.

Linguistic typology, aptly described by Aikhenvald and Dixon (2018:1) as an 'all-embracing' discipline, has the dual purpose of cataloguing and categorising languages, their features and structures on the one hand, and of establishing generalisations about the existence of such features in particular groups of languages or their correlations with other features on the other hand. In short, it concerns itself both with language diversity as well as the aetiology of that diversity (Bickel 2007:239; also cf. Crevels & Muysken 2020; Nichols 1992). These observations can result in general, absolute statements ('All spoken languages have consonants.'), more tendential, relative expressions ('Most/Many/Some/Few languages have feature X.') or implicational statements (e.g. Greenberg's Universal 36: 'If a language has the category of gender, it always has the category of number', 1966:95). These so-called universals are some of the results of typological research and make patent its ultimate goal, that is to establish commonalities between different languages, language areas or types of languages—whether general or conditional—and thus to inform the general understanding of the human language faculty.

The results of typological studies can, however, also take different forms, so for instance that of implicational hierarchies or typological databases. Notable examples of these include the Sonority Hierarchy (cf. e.g. Vennemann 1987 for the derivation of such hierarchies with reference to German, Germanic, Italian and Latin) and the Noun Phrase Accessibility Hierarchy (Keenan & Comrie 1977) as well as WALS (Dryer & Haspelmath 2011) and, most recently, Grambank (Skirgård et al. 2023). While the latter serve as exploratory tools and consequently the establishment of generalisations such as those mentioned above, they also often underlie the creation of implicational hierarchies. These, in turn, once established on the basis of empirical observations, can help to understand at a deeper level the linguistic and language-related reasons for the existence of such hierarchies. On this basis, the hierarchies themselves obtain explanatory and, to a limited extent, predictive powers and can be adduced in linguistic research, esp. in fields like historical linguistics where empirical data is not always available to the desired extent.

Besides the exploration, observation and generalisation of specific linguistic features such as syllable structures, the accessibility of noun phrases in relativisation or constituent orders—an intra-language approach in Aikhenvald and Dixon's terms—, typological research does also ask questions with reference to extra-linguistic notions, such as the expression of time, direction, kinship, etc. (cf. e.g. Zwarts 2008 on the typology of directional expressions or Feist & Duffy 2020 on a typological perspective on temporal motion), all of which can equally be catalogued in typological databases and demonstrate the variety of linguistic expressions across the world's languages. The empirical and typological data such investigations provide is, of course, not in itself explanatory: the near-identical manifestation of a feature or expression of a concept can have a variety of reasons such as a

genetic relationship between the languages in question, sufficient contact between said languages for such expressions to be copied between them, or indeed chance. Typological data can help confirm the existence of contact relationships or corroborate the existence of proposed genealogical groupings, but equally highlight potential links between languages or language groups that other linguistic research had not previously unearthed. In all cases, linguistic factors need to be taken into account just as much as extra-linguistic ones such as social, geographical, historical, and political circumstances to evaluate whether a typological observation is based in linguistic fact or only a coincidence. A classic example of phenomena best understood in their language-contact context is the rise of suffixal determiners and the loss of subordinate infinitival phrases in the languages belonging to the *Balkansprachbund*; while these changes could have taken place in isolation, the socio-historical circumstances allow for a well-motivated contact-based explanation. For such and other contact scenarios—as with any other data-related undertaking—the better the information (≈ the greater the number of data points), the more reliable are the analyses based on the data as a whole.

To a certain extent, the study of language contact is therefore already an integral part of typological research. Contact research in itself can take a great variety of shapes, from the detailed consideration of one particular contact relationship in all domains to the exploration of specific domains from a contact perspective. Such studies can be conducted in specific frameworks[3] or from a broader, non-framework-specific perspective;[4] the former usually aligns them with a constraint-based approach, prioritising language-based factors to determine the (im-)plausibility of a contact-induced change, whereas the latter assumes a more universalist way of thinking which considers extra-linguistic factors to be just as pertinent for the analysis of contact situations. Besides these attitudinal differences, a number of further dimensions manifest in contact linguistics: contact scenarios can be studied from a synchronic vantage point, usually providing descriptive data, or from a diachronic one, where contact serves as one aetiology (potentially amongst many) for change. Contact between languages itself can vary vastly along a number of variables, including timespan, intensity (e.g. measured by the degree of bilingualism), pervasiveness (Which societal strata are affected?), dynamics (What is the historical and socio-political relationship between the languages involved?), etc.[5] As a result of these various factors and their number, the outcomes of language contact are extremely diverse, starting with lexical borrowings on the lower end to large-scale pattern replication at the higher,[6] with extremes in a variety of dimensions that include mixed languages (cf. e.g. Meakins 2013), language shift and language death. Likewise, contact can induce non-change, that is the retention of features that might otherwise have been lost (cf. e.g. the work on absence of change presented in Breitbarth et al. 2019). One reason for (and purpose of) investigating the typology of contact-induced change is therefore the desire to understand whether any of these dimensions at large, or particular manifestations, have constraining, promoting or other predictable effects on particular types of (non-)change.

Like typology, contact linguistics also relies heavily on data and its results become more expressive and reliable the better and more numerous the data points are. The necessary data are not only synchronic descriptions of specific linguistic features, however, as typology would require, but rather more complex, as Ross summarises:

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[3] One example of such a framework is the 4-M model, cf. Myers-Scotton (2002); Myers-Scotton & Jake (2000).

[4] This perspective often gives primacy to the socio-historical circumstances of contact and assumes that they are the motor —and constraint—of contact-induced change; cf. Heine & Kuteva (2008); Poplack (1997); Thomason (2007, 2008).

[5] The influence of English as used, for example, in movies or advertisements (cf. Piller 2003) is different to the one it would have in a close-contact scenario, e.g. on Spanish in the southern USA (cf. Fishman et al. 1971).

[6] For different perspectives on the classification of these and their association with different contact scenarios, cf. e.g. Thomason & Kaufman (1988); Winford (2005).

> [I]n order to make real progress in contact linguistics, we need to examine cases where we have a good understanding of the changes that have occurred in the [copying language] (i.e., of its structure both **before and after** copying) and a good understanding of the [model language] at the time that copying took place. We also need reliable information about the **sociolinguistic circumstances** of contact-information that is independent of the linguistic data. (Ross 2019:124; my emphasis)

These two distinct requirements—knowledge of a language's grammar before and after contact; knowledge of the extra-linguistic circumstances of contact—impose significant obstacles if not barriers on diachronic contact studies and thus the exploration of non-genealogical and non-analogical aetiologies for language change. While most European languages are sufficiently well documented to allow for such research to a certain extent, this is not the case for many languages of the Americas, Africa, Asia or Oceania, which often do not have a long-standing written tradition, let alone documents providing metalinguistic information.[7] For some ancient languages, these challenges can be met to a certain extent by means of comparative data from other, genetically related languages;[8] still, such endeavours are necessarily limited in scope and inevitably more speculative than work based on more concrete data.

It is in this particular context, that is the exploration of contact aetiologies for diachronic change, that typological insights can be useful in situations where the language data available is suboptimal or insufficient. In the same way that comparative data from related or reconstructed languages in the same family allow for the establishment of an approximate baseline for change, typological data can help evaluate the plausibility of an outcome of change in correlation to other features of the language in question. The inclusion of such insights can, in essence, take two shapes: direct, that is by taking into account the so-called typological distance between two languages as regards a particular feature or set of features, suggesting that the greater the distance, the less plausible is the contact-induced change;[9] or indirect, by an *argumentum e contrario* based on typological correlations and implications, suggesting that the features of a language after the change in question are typologically uncommon and therefore unlikely to be the result of non-contact-induced change.[10]

Since this application of typology to contact linguistics is limited and at least in parts potentially flawed, however, a different approach to the combination of both fields is needed. Taking into account the requirements and goals of both disciplines as briefly outlined above, the next section is going to develop what a typology of contact-induced change might look like and why.

3. THE PURPOSE OF A TYPOLOGY OF CONTACT-INDUCED CHANGE

Before outlining the specific modalities and setup of a typology of contact-induced change, it will be useful to outline at least briefly the particular reasoning behind such a proposal, that is the purpose of contact typology. The five key aspects, in order of discussion below, might be summarised as

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[7] There are, of course, exceptions: Classic Maya dates back to the first millennium CE, and Egyptian to the late fourth millennium BCE.

[8] Cf. e.g. recent studies on Greek and Anatolian (Bianconi 2019), Greek and Coptic (Fendel 2022), and Armenian and Parthian (Meyer 2023).

[9] For a critical view of the notion of 'typological distance' and its value for contact linguistics, cf. Meyer (2019).

[10] This kind of argument is inherently problematic for a variety of reasons. Firstly, typological data does not distinguish the origins of particular features and thus cannot speak to the 'naturalness' of any feature set, that is whether it is the product of 'regular', genetic developments or contact-based ones; while different processes, the outcomes of these different types of changes need not be different and often interact. Secondly, genetic change can bring about typologically unusual and indeed improbable results, in particular when viewed from a macro-perspective; a point in case is the (in-)famous sound change affecting Indo-European *dw- clusters in Classical Armenian, producing *erk-*.

follows: discoverability, observability, counteracting traditional biases, systematisation and expandability. All of them centre around the notion not of the employment of typological reasoning or the use of typological data as discussed above, but the establishment of a typology of contact-induced changes itself; in short, the exploration of what changes have taken place in what contact scenarios under what circumstances. In this context, 'change' is best understood broadly as an alteration in the expression of a feature, which itself encompasses both phonological, morphological, syntactic, etc. units.

The most elementary purpose and reason for the creation of a typology of contact is the discoverability of already extant research, ideally in the form of a database and associated descriptions. As has been done very successfully for typology more generally with WALS and now Grambank, with large-scale linguistic corpora more generally, and in historical linguistics with resources like IE-Cor, the crux is the creation of a central, openly accessible nexus which presents the basic data for a particular contact scenario, affected features or other variables in a standardised fashion, including references to primary (or secondary) sources;[11] these are, at times, problematic as Section 4 below discusses. These tools and platforms allow researchers to access and search data both through an online interface and in raw form, meaning that the individual can at a glance gain new impressions of a particular feature (e.g. the distribution of uvular sounds across the world's languages, Maddieson 2013) quickly double-check an observation or correlation (e.g. the notable geographical distribution of click sounds), or use the available data for further processing themselves. The fact that esp. WALS allows for the combination of multiple datasets and thus the visualisation of potential correlations, areal or featural, is important in this context; in this way, the co-occurrence of different features can be easily gleaned from the map representation, allowing the researcher to discover at a glance whether they might be related implicationally, or whether particular areas show such feature pairings more than others.

Such a platform remains an obvious desideratum for language contact studies in general and the typology of contact-induced change in particular. The literature on change through contact is diverse both as regards the level of detail, degree of information depth (both linguistic and extra-linguistic), perspective (linguistic, historical, anthropological, etc.) and thus venue of publication. As Section 5 below illustrates in more detail, discovering changes resulting from contact (e.g. in morphosyntactic alignment) and their specifics is a laborious endeavour when compared to the ease with which feature distributions across different languages can be accessed and compared. Thence springs the fundamental need for a database for such cases, which will make individual changes more easily discoverable and comparable and thus pave the way for further work on this or related changes or features; in other words, a researcher working on contact-induced alignment change in language X will be able to find other contact scenarios which have given rise to such changes and thus compare and contrast setting, variables, outcomes, etc.

As an extension of this discoverability, the overview perspective granted by such a data collection will also allow for the establishment of putative correlations and implications on the basis of the different variables, linguistic and extra-linguistic, recorded in the datasets and across changes. Supposing the availability of sufficient (and sufficiently good) data, such correlations could identify particular socio-historical dynamics, linguistic domains or time depths of contact as significant correlates of particular types of change, thus providing a better understanding of what can change when. In more specific contexts, such studies have already been carried out fruitfully: in a study on

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[11] WALS (Dryer & Haspelmath 2011) is a database of phonological, grammatical, and lexical properties gathered from scientific descriptions of the world's languages and collected in more than 190 entries. Grambank (Skirgård et al. 2023) likewise is a large database, covering 2′467 language varieties from 215 different language families and 101 isolates, intended to aid the investigation of feature distributions, language universals, functional dependencies, etc. IE-Cor (Heggarty et al. 2023) is a language database investigating cognate relationships across language families, currently implemented for the Indo-European family, and seeking to understand the closeness of relationships between languages on the basis of the cognacy of their core vocabulary.

the borrowability of affixes, Seifart (2015) shows on the basis of a typological comparison between 78 languages in the *AfBo* database (Seifart 2013) that this process is not meaningfully constrained by structural similarities between the donor and recipient languages, thus providing concrete counter-evidence to previous claims to this effect.[12] In like fashion, a typological approach to other contact-induced changes (beyond borrowing) would serve to corroborate or relativise general claims (e.g. that syntactic interference is tied to long-term contact scenarios) or to propose new correlations.

Besides these two practical purposes—discoverability and observability—there are also more principled reasons to engage in contact typology. The first of these reasons is a historical bias for genetic or analogical explanations, that is language-internal changes. Thomason summarises this problem succinctly as follows:

> Traditional historical methodology in linguistics is so heavily biased in favor of internal causation that the absence of proof of [contact-induced] interference might be thought to be sufficient evidence for internal causation. (Thomason 1980:362)

While much has changed in the last 40 years and to no small degree thanks to the contributions to the field of contact linguistics by researchers like Alexandra Aikhenvald, Bernd Heine, Yaron Matras and Sarah Thomason, the understanding, degree of classification and wealth of well-documented examples of 'internal' changes still outdo similar efforts in contact-based explanations. Accordingly, the establishment of a platform and framework for the recording and classification of and information on such changes would help to 'raise their profile' and allow for a similar ease of comparison as is the case with 'internal' changes; equally, the increased visibility of such changes in a variety of settings and the ensuing change of perception of contact-induced change as being less unpredictable should help to achieve that contact explanations are more routinely considered (and taught) as a step in the process of finding diachronic explanations for synchronic patterns—even if they are the last step (cf. Poplack & Levey 2010:409–12).

In the same way that contact considerations need to be included more standardly in diachronic linguistics, socio-historical data need to be considered more systematically in contact studies. As brought up in Section 2 above, there a still numerous open questions in contact linguistics, chief amongst which perhaps that of the constraints of contact-induced change. A typological approach which can correlate both socio-historical factors with particular changes as well as pre-existing or resulting features in the donor and/or recipient languages would provide concrete insights whether, in the words of Thomason, "the social relations between [...] two speech communities, not the structures of their languages, determine the direction and even the extent of interference" (2008:53) or whether there are specific linguistic limits to what can and cannot be 'borrowed'—or whether the answer is somewhere in between. More broadly, such an approach would systematically put in focus the importance of extra-linguistic information for the study of languages and language change in (potentially) showing their correlation with particular features, types of change (or lack thereof) and in turn the value of linguistic study for socio-historical research.[13]

Next to the systematic integration and valuation of extra-linguistic data, and most importantly for its usefulness and longevity, a typological approach to contact-induced change must from the outset and by default be expandable in all dimensions: more languages/contact scenarios, more variables, more features. Researchers must be encouraged to contribute their datasets and insights in such a typological framework to make them most widely accessible and useable. This, in turn, has practical

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[12] Such claims were already made by Meillet (1921); also cf. Weinreich (1953:33); Winford (2005:387).

[13] Cf. for instance, the proposal of Meyer (2022a), suggesting that, taking into account extra-linguistic data and the kind of contact-induced changes in Classical Armenian, the Parthian donor language must have undergone a superstrate shift to Armenian, explaining the lack of documentary evidence of Parthian in the relevant time period and region.

advantages: provided adequate peer review and/or other means of quality control, features can be added incrementally by a variety of researchers and the typology develops on the basis of shared questions, interests or needs rather than necessarily by a preset project agenda alone. Sufficient technical means for such a setup are already available and form the basis of some of the databases mentioned above.[14]

With the purpose of contact typology thus expounded—to make more easily visible and useable data about contact-induced change, permit the observation of potential correlations and implications, and to provide a firm place in historical linguistics for contact-based explanations by creating a systematic framework and typology—the question arises, what shape such a typology should take. Put differently, for any one change to be explored, what variables need to be recorded to allow for a sensible comparison between different instances of this change?

Some of these variables are self-explanatory. Both languages involved in the change need to be recorded, as well as the directionality of the interference, that is which language is the donor, which is the recipient language. For the sake of visual representation, geographical coordinates for the language undergoing change are also necessary. For the change in question itself, a set of parameters must be defined; depending on the change observed, these could be quite broad (e.g. 'synthetic ⇒ analytical', 'fusional ⇒ agglutinative',[15] etc. if the change concerns the morphology of a language as a whole) or more fine-grained (e.g. 'loss/creation of case X' and its various commutations in the case-marking of nominal systems). In either case, an option 'other' should be provided to allow for later reclassification should multiple such cases accrue. For this reason, the change studied needs to be well-defined in advance and at least an elementary dataset provided from the outset to allow for the most relevant parameters to be set out already.

Each scenario in which such a change manifests should further list one illustrative example, at least before and after the change, to explain the specific realisation of the change in the particular language(s). For the same reason, references to primary sources and secondary literature dealing with this change should be provided to allow researchers to explore them in more detail than is possible in a typological context alone.

At least three other variables come into play owing to the contact-related nature of these changes: time-depth, that is length of documented or reconstructible contact between two (or more) languages; time of interference, defined as the time between the beginning of contact and the first documentation of the change; and the socio-historical relationship between donor and recipient language, which needs to be clearly parametered as well. As is discussed in detail in the following section, these last three variables are of greatest potential interest for the establishment of a typology of contact-induced change in that they could provide potential correlates for the occurrence of change and period of contact, etc. At the same time, however, in many historical contexts, they are the least readily available or reliable data.

There are, of course, studies and other literature which have already considered particular aspects of the typology of contact-induced change, e.g. Gardani (2008); Matras & Sakel (2007a); Wohlgemuth (2009). Yet, as already suggested above, the most practical and more generalist implementation of such a typological approach, an online database in the style of WALS or Grambank, is still wanting; once sufficient data has been gathered in this format, overarching tendencies and types of contact-induced changes can be proposed in different formats as the respective scholars see fit and as the data and insights demand. An initial attempt at such a data collection and evaluation at the example of contact-induced alignment change is made in Section 5 below.

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[14] This framework is the result of the Cross-Linguistic Linked Data project (CLLD) of the Max Planck Institute of Geoanthropology.

[15] A well-known example is the development of agglutinative nominal structures in Asia Minor Greek; cf. e.g. Janse (2009a, 2009b); Karatsareas (2011, 2016).

Before moving on to this demonstration, however, the inherent limitations of a typological approach to contact-induced change must be considered as well as the issues arising from the variables and parametric approach suggested here.

4. INHERENT LIMITATIONS OF ANY SUCH TYPOLOGY

Any undertaking such as that described above has, inevitably, a number of practical or inherent limitations that need to be addressed and, in the best case, remedied or else at least acknowledged. For the establishment of a typology of contact-induced change, five principal issues arise: the nature of the data; differences in explanations; the definition of parameters; the scope of the notion 'change'; and the definition of extra-linguistic variables. These are discussed briefly in the following paragraphs with suggestions on how to address them where possible.

The first issue relates to the nature of the linguistic data and its provenance. Coming back to what Aikhenvald & Dixon (2018) say about the sources and best practice in linguistic typology, it is evident that primary sources (fieldwork data, texts, etc.) should be the basis for the linguistic evaluation and typological categorisation of all languages, and that secondary literature, i.e. theoretical treatises or evaluative studies, should be double-checked against such sources if they are to be used. By extension to the setting of contact typology, this means that both donor and recipient language data should be evaluated in this fashion, and furthermore, that in the case of the recipient language, in which the change in question occurs, at least two stages of documentation are needed, namely one prior to and one after the change has taken place. This is unproblematic for languages with a rich documentation history; in scenarios, however, where one or another language or language stage is less well attested, or where contact has taken place prior to first attestation, questions arise. To what extent, for instance, should it be permissible to work on the basis of comparative data and/or reconstructions for the pre-change stage of a recipient language, supposing that said reconstruction is well-founded? The second question relates to the feasibility of large-scale studies on the basis of primary data alone: this is not only problematic for reasons of access to or availability of such primary resources (or indeed the discoverability of secondary literature), but also a question of expertise. Since typological insights rely on sufficiently large data sets, researchers working on any particular change will likely have to include data from languages beyond their immediate expertise. As the case study in Section 5 below illustrates, for the purposes of studying contact-induced change, researchers must be able to rely on other typological literature, secondary sources and (if need be) reconstructions; without this compromise, any attempt at such a typology would be stymied from the outset or be exceedingly time- and labour-intensive.

The second data-related issue concerns not the linguistic, but the extra-linguistic evidence and the confidence with which it can be recorded and categorised. In language contact scenarios whose onset (and potential end) are sufficiently documented by linguistic or other evidence, in which datable texts demonstrating the change in question exist, and for which the social dynamics between donor and recipient language can be established on a reasonable evidential basis, there is no problem. As with the unavailability of linguistic data discussed in the previous paragraph, however, such information may not be readily available for historical languages, either due to a lack of information in general or because of the hypothetical or speculative nature of such evidence. For a typology of contact-induced change, it is self-evident that the lack of any kind of data in these categories is an exclusion criterion; the fact alone that contact played a role in language change is insufficient for a meaningful evaluation across the extra-linguistic variables listed above. If, however, putative data can be entered, the change should be recorded with these data points, duly acknowledging their uncertain status.[16] This approach inevitably constitutes a compromise and may

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[16] As will be discussed in Section 5.3 below, uncertainty is inevitable, esp. in historical contact scenarios. Information should be provided with reference to the secondary literature and a categorisation attempted where possible.

influence the establishment of correlations and implications; if such a compromise were not made, however, a great number of data sets would be inadmissible and the whole typological exercise very limited in scope. Linked to the availability of such extra-linguistic data arises the question of its categorisation: how can different contact scenarios be made meaningfully comparable? The time-related variables are unproblematic, but categorising the socio-historical relationship between the two languages is inevitably multifactorial (intensity, degree of bilingualism, social status of either language, etc.). Accordingly, a multilayered approach is required, where at the most basic level such a relationship is described in very general terms (e.g. [±intense] vel sim.) and where parallel subordinate levels contain more fine-grained information regarding the factors mentioned above; this allows the researcher to gain both an overview of the correlation between socio-historical variables and contact-induced change while not requiring that every scenario list all factors, some of which may not be available.

Next to the questions of what counts as relevant data and whether enough data is available comes the question of which eligible data should be counted in case of multiple concurrent explanations. Put differently, if two or more explanations of a particular change exist, one relating to language contact, should this case be counted if the other explanation(s) have not been disproven? In short: does the plausible suggestion of contact-induced change suffice for inclusion in this typology? There are at least two reasons to include such cases where competing explanations exist: one is the historical bias against contact explanations mentioned in Section 3 above, which may have held back plausible proposals in favour of less plausible internal ones; the other is the fact that many contact-induced changes rely on certain language-internal factors or predispositions,[17] making few if any changes exclusively contact-induced. Naturally, competing explanations should be listed in the literature of the recorded change for completeness' sake.[18]

A different issue arises in the definition of the parameters according to which each change is evaluated. These need to be sufficiently specific to cover all datasets faithfully but, at the same time, sufficiently general to not produce an unmanageable and unhelpful plethora of parameters; likewise, they may in the course of the investigation of any one change be altered to better reflect the big picture.[19] The practical implications of this question are illustrated in detail in Section 5 below at the example of morphosyntactic alignment, and can be summarised in the following questions: is it enough to record overarching changes (e.g. NOM–ACC ⇒ ERG–ABS, etc.) or must more specific details be recorded (e.g. NOM–ACC ⇒ split-ERG–ABS)? If the latter, to what degree of detail (e.g. which tense/subsystem is affected) must the record go? The most productive approach would seem to be that multiple, nested parameters be defined so that, depending on the other (future) datasets, commonalities and differences between changes and contact scenarios can be evaluated at each level, whichever is the most useful for the question at hand.

Another definitional question arises when it comes to the notion of 'change' itself. What qualifies as change and ought thus to be recorded for typological purposes, and what is 'just' a stage in such a process? If individual stages are to be recorded, how can this be achieved without overlooking the overall change? As is illustrated with reference to the development of Classical Armenian morphosyntactic alignment in Section 5.2 below, this decision depends on the individual contact scenario and the extent to which contact itself can be adduced as the reason for change: the initial,

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[17] Contact-induced change often requires that certain parallels between donor and recipient language patterns exist, which can then be 'exploited' by a process like pivot-matching and subsequent polysemy-copying; for these terms, cf. Matras & Sakel (2007b), and for the process more generally, cf. Heine and Kuteva (2003:533).

[18] One reviewer rightly remarks that the inclusion of datasets resulting from *potential* language contact is bound to create a bias or a skew in the data. This is, of course, true. At the same time, it seems preferable to include potentially biased or skewing data, clearly marked as such, which can then be disregarded, than 'sweeping under the carpet' such potential explanations which, owing to a lack of incontrovertible (= often unattainable) data, cannot be proven.

[19] This is one of the principles underlying the AUTOTYP (Bickel et al. 2022) scheme for typological databases, where categories of analysis are generated from the data and not predetermined.

contact-induced change must, of course, be recorded, but other, subsequent developments which affect the outcome of said change but are due to internal pressures ought not to be counted. Such fine-grained decisions only arise in situations where sufficient data and diachronic analysis are available, which in itself highlights the problem that some contact-based explanations may, for a variety of reasons, oversimplify the changes discussed and thus potentially distort the data.

As this section has highlighted, there are a number of potential data-related issues that require a certain degree of compromise and flexibility in order to make the creation of a typology of contact-induced change practicable. The definitional issues that have been highlighted can, on the whole, be overcome by accepting different degrees of detail according to which each contact scenario is evaluated in every change. The next section will illustrate some of the abstract concerns voiced above, as well as the purpose of such a typology, at the example of contact-induced morphosyntactic alignment change.

5. CASE STUDY: CONTACT-INDUCED MORPHOSYNTACTIC ALIGNMENT CHANGE

To give a glimpse at what a typology of contact-induced change might produce, this section provides an example of one change, viz. morphosyntactic alignment change, across a small number of different languages. What is presented here is, of course, very limited in scope for a variety of reasons,[20] but will suffice to highlight the main points made in Sections 3 and 4 above. The case study begins in Section 5.1 with an explanation of the change in focus, a brief reiteration of the variables as laid out above and a definition of the parameters according to which the different contact scenarios are going to be analysed. Section 5.2 outlines the dataset and provides all the typologically pertinent information as well as a few illustrative examples of this type of change. In turn, Section 5.3 considers the data just presented and offers some initial thoughts on potential correlations and insights into contact-induced alignment change.

5.1. Definitions

The change in focus in this case study concerns morphosyntactic alignment, that is the encoding of subject and direct object by means of case assignment, constituent order or other morphosyntactic means.[21] Based on three types of basic participants—S, the subjects of intransitive verbs; A, the agents of transitive verbs; and O, the direct objects of transitive verbs—a closed set of five morphosyntactic alignment types can be observed:

- nominative–accusative (NOM–ACC, S = A ≠ O)
- ergative–absolutive (ERG–ABS, S = O ≠ A)
- tripartite (TRI, S ≠ A ≠ O)
- neutral (NTR, S = A = O)
- transitive (TRS, S ≠ A = O)

These alignment patterns may apply to the entirety of the language's verbal system or may be restricted to particular sub-domains; the two most common such restrictions would be tense-sensitive split-alignment (TSA), in which different alignment patterns are applied to different tense- or aspect-stems, and NP split-alignment, in which two or more alignment patterns are applied to different types of noun phrases, e.g. along the animacy hierarchy (cf. Silverstein 1976;

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[20] While limitations of space figure into this selection, it is largely the limited availability or discoverability of data and/or secondary literature that has determined the dataset discussed here, as will be problematised in Section 5.3.

[21] The below is, by necessity, a simplification both of the complex alignment patterns of some of these languages—many of which show elements of more than one alignment type—as well as of the potential diversity of alignments were more arguments than only subject, agent, and object taken into account. For a fuller picture, cf. Bickel & Nichols (2008); Haspelmath (2011).

Dixon 1994:83–97). Other alignments and alignment splits exist, but are excluded for the present purpose.[22]

On the basis of these values, the possible changes of alignment can be recorded as directions, from one pattern to another; with five patterns and four directions of change, that comes to twenty possible parameters. For a more fine-grained analysis, the possibility of split-alignments needs to be taken into account, yielding 210 possible parameters.[23]

The other relevant variable as listed above are recorded as follows:[24]

- Donor and recipient language by standard designation according to Glottolog and with their ISO 639-3 reference.
- Approximate geographical position of the recipient language by WGS84-compatible coordinates to the core territory where that language is or was spoken.
- Time-depth of contact in years.
- Time of first attestation of change in years since the onset of contact.
- Realisation of the change as a set of simple glossed examples of before and after (ideally with a donor language parallel).
- Extra-linguistic data concerning the contact scenario, e.g. as 'degree of intensity' (basic, intermediate, intense, full bilingualism; with other, finer parameters to be recorded as available) or as relational dynamics (e.g. +/=/− as regards prestige).
- References to primary sources or secondary literature as bibliographical data.

5.2. Data

The data presented here, summarised briefly in Table 1, is a convenience sample of language pairs for which the literature indicates a change in morphosyntactic alignment as a result of language contact; their approximate geographic location is presented in the map in Figure 1. This dataset is not (nor intended to be) exhaustive, but suffices to illustrate some of the advantages of conducting studies even on so small a sample. The choice of language pairs relates to the availability and accessibility of information.[25] For reasons of space, three illustrative examples are presented in a little more detail to give a practical demonstration of some of the issues mentioned above.

The first example is chronologically the oldest: Classical Armenian, an Indo-European language, was in contact with Parthian, likewise an Indo-European language but from a different branch of the family, for at least 350 years;[26] the onset of change is difficult to date, but must have been some time before the end of meaningful contact, so perhaps 250–300 years post-contact. Contact was intense, but likely did not reach the level of full bilingualism in all societal strata.[27] As examples (1–3) show, Armenian has developed an initially split-ERG–ABS alignment pattern, in which all synthetic tenses (PRS, PST, AOR) construe along NOM–ACC lines, but the analytical tenses (PF, PLPF, FUTPF) use ERG–ABS.

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[22] These include but are not limited to semantic alignment, cf. e.g. Dixon (1994:70–83), Donohue & Wichmann (2008).

[23] The number of parameters of this change is equal to the number of permutations of ordered pairs in the set of objects, five in the case of basic alignment patterns, and 15 in the case of alignment patterns with or without one or another split.

[24] These choices are based on best practices as identified in other typological databases, for example, WALS and Grambank.

[25] The data used here have been gathered over the course of multiple weeks perusing both university library catalogues, the *Bibliographie Linguistique* of the past 50 years, and online resources (Google Scholar, ResearchGate, Academia.edu). The resulting data speaks volumes of the discoverability of information in this field.

[26] Contact with Iranian in general began much earlier, towards the end of the 6th-century BCE; the period of most intense contact coincides with Parthian rule of Armenia, from the middle of the 1st-century CE onwards until the absorption of the Armenian kingdom as a province of the Sasanian Empire in the early second quarter of the 5th-century CE. Cf. Garsoïan (1997a, 1997b).

[27] Little to nothing is known about the language of the sub-elite for this period; there are numerous reasons, both linguistic (wealth of loanwords, instances of pattern replication) and extra-linguistic (intermarriage, exchange of wards, joint Christianisation, joint warfare) in nature that suggest intense contact. Cf. Meyer (2022a).

TABLE 1. Contact-induced alignment change: basic summary.

Recipient	Donor	Type	Duration (in years)	Relative Status	Selected references
Dakkhini (dakh1244)	Telugu (tel|telu1262)	ERG–ABS→NOM–ACC	600–	=?	Stroński (2009)
Light Warlpiri (ligh1234)	Aus. English (aust1314)	ERG–ABS→NOM–ACC	150–	–	Bavin & Shopen (1985)
Ch'olan (chol1287)	Yucatec (yua|yuca1254)	ERG–ABS→^{S}ERG–ABS	500–1'000–	=?	Law (2014); Law et al. (2006)
Magar (mgp|east2352)	Nepali (npi|nepa1254)	ERG–ABS→^{S}ERG–ABS	1'500–	-?	Noonan (2003)
Nepali (npi|nepa1254)	Newari (phj|paha1257)	^{S}ERG–ABS→ERG–ABS	1'000+	+?	Masica (1991); Stroński (2014)
Dyirbal (dbl|dyir1250)	Aus. English (aust1314)	^{S}ERG–ABS→NOM–ACC	100–160–	-	Schmidt (1985)
(Ardeşen) Laz (lzz|lazz1240)	Turkish (tur|nucl1301)	^{S}ERG–ABS→NOM–ACC	500+	-	Haig (2001)
Gurindji Kriol (gjr|guri1249)	Gurindji (gue|guri1247)	NOM–ACC→ERG–ABS	50–	=?	Meakins (2009)
Cl. Armenian (xcl|clas1256)	Parthian (xpr|part1239)	NOM–ACC→^{S}ERG–ABS	350	-	Meyer (2023)
NENA (nort3241)	Sorani (sule1239)	NOM–ACC→^{S}ERG–ABS	180	-	Khan (2004); Meyer (2019)
Japhug (japh1234)	Amdo (adx|amdo1237)	NTR→ERG–ABS	1'200–	-	Jacques (2019)
Thalanyji (dhl|dhal1245)	Martuthunira (vma|mart1255)	TRI→NOM–ACC	?	=?	Jacques (2019)

Legend: Duration – '+' indicates 'at least', '–' indicates 'ongoing', '?' indicates 'unknown'; Relative Status – '=' indicates 'equal status', '-' indicates 'Recipient has lesser status than Donor', '+' indicates 'Recipient has higher status than Donor', '?' indicates uncertainty.
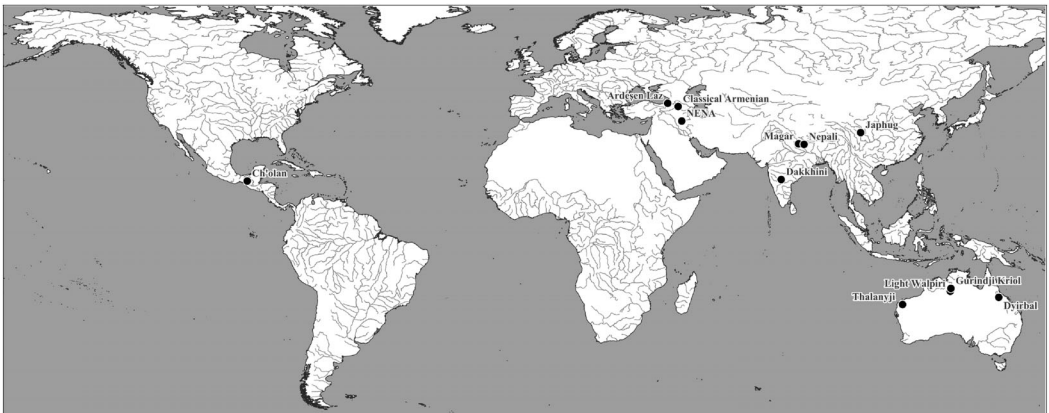

FIGURE 1. Approximate location of the recipient languages in this sample.

(1)　*kw*　　　　　*'ym, cy=m*　　　　*'c*　Tw　*wx'št,*　　　*'w　mn*　　*w'c'ẖ*
　　COMP　　　　DEM　REL=1SG.OBL　from　2SG　request.PTCP　TO　1SG.OBL　SAY.2SG.SBJV
　　"That which I requested from you, may you tell me [it]!" (Parthian; Meyer 2022b:291)

(2)　*hasanēr*　　　*aṙ　is*　　　*hraman*
　　arrive.3SG.PST　TO　1SG.ACC　order.NOM.SG
　　"An order arrived for me" (Cl. Armenian; Meyer 2022b:280)

(3)　*ew*　*ēr*　　　*sora*　　*ənkaleal*　　　*z=k'orepiskoposut'ean*　*jeṙnadrut'iwn*
　　CONJ　BE.3SG.PST　3SG.GEN　receive.PTCP　OBJ=rural-bishop.GEN.SG　consecration.NOM.SG
　　astičani=n　　　*i*　　　*jerac'*　　　*meci=n*　　　　*Grigori*
　　rank.GEN.SG=DET　from　hand.ABL.PL　great.GEN.SG=DET　PN.GEN.SG
　　"And he received the consecration to the rank of bishop from the hands of the great Grigor"
　　(Cl. Armenian; Meyer 2022b:282)

Example (1) shows an agent in oblique case and verbal agreement with the 3SG object, which in Parthian is marked as Ø in the past; (2) illustrates nom-marking of the subject and verbal agreement with it in a synthetic tense, so found also in intransitive verbs in the analytical tenses; (3), in turn, shows the gen-marking of the transitive agent, whereas the object received nom-marking, and the copula occurs in a fixed, Ø-agreement form (3SG).

The example of Armenian is quite complex, but of interest in this context for a variety of reasons. In the first place, there are a host of explanations other than contact for the non-NOM–ACC alignment of the perfect-stem tenses;[28] as stated above, however, this is not an exclusion criterion as long as one plausible contact-based explanation exists. Secondly, the initial ERG–ABS pattern that is established as the result of contact gives way to TRI alignment already in the earliest attested sources, but clearly as the result of an Armenian-internal development;[29] this illustrates that care must be taken to record only the appropriate, contact-induced change, not subsequent stages where such are attested. Third, owing to the attestation history of Armenian, no record of the language before this morphosyntactic change exists; again, this is not an exclusion criterion since comparative evidence from other Indo-European languages with similarly built morphosyntactic forms exists to allow for a reasonable reconstruction, and because vestiges of the pre-change pattern exist as low-frequency variants in the attested literature.

The second case is a contemporary one. Light Warlpiri is a mixed language, the result of contact between speakers of (traditional) Warlpiri (Pama-Nyungan), Australian Kriol (itself a mixed language) and Australian English. The initial contact between Australian English and Warlpiri speakers is difficult to determine, but is likely related to the expansion of pastoral communities to the core Warlpiri territory in the 1880s and is still ongoing (cf. Brown et al. 2012); the changes now associated with Light Warlpiri were first documented about 100 years post-contact (cf. Bavin & Shopen 1985). The contact situation has changed over the years, but at least in the generations leading up to the change in question must have been close to full bilingualism; the creation of Light Warlpiri, a mixed language which exists next to traditional Warlpiri, is the result of code-mixing (cf. O'Shannessy 2012).

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[28] For a critical discussion of these explanations, cf. Meyer (2023:83–100) with references.
[29] Nominative and accusative are largely isomorphic in Classical Armenian, with the exception of first- and second-person personal pronouns and the nominal plural. Together with differential object marking and the pressure from the NOM–ACC-aligned synthetic tenses, this has led to the creation of TRI alignment (S = NOM, A = GEN, O = ACC). For more details, cf. Meyer (2022b).

While Warlpiri traditionally construes along largely ERG–ABS lines,[30] the donor languages (Australian Kriol and Australian English) use NOM–ACC alignment. Example (4) gives a transitive sentence in traditional Warlpiri, whereas (5) is taken from Light Warlpiri.

(4) *Ngarraka-ngku wawirri   luwa-rnu.*
    man-ERG   kangaroo shoot-PST
    "The man shot the kangaroo." (Walpiri; Laughren 2017:953)

(5) *i-m   bring-im nalija Nungarrayi*
    3SG-NFUT bring-TR TEA   PN
    "Nungarrayi brought tea." (Light Walpiri; O'Shannessy 2005:47)

In example (4), the agent is marked as ERG explicitly by an appropriate suffix; this system is no longer applicable in (5), where neither constituent is case-marked, but verbal agreement and transitive-marking indicate NOM–ACC alignment.

The Light Warlpiri data is of interest for two reasons. In the first place, because it raises the question of the place mixed languages have in contact typology. Since these commonly result from full bilingualism (cf. e.g. Velupillai 2015:69–70), however, which in turn is often an extreme case of language contact, there is no reason to exclude them from consideration. At the same time, however, it is worth bearing their special status in mind in case they should exhibit different behaviours compared to other contact scenarios.

Second, this alignment change is a change-in-progress for Light Warlpiri, which retains the possibility of marking overt agent NPs as ERG, but in more than 40% of occurrences no longer does so (cf. O'Shannessy 2016:230). This highlights the importance both of notes on each contact pair, but also on following up on ongoing contact scenarios in case of change: it is, after all, possible that the loss of ergative marking never fully grammaticalises.

The third example case discussed here is that of Northeastern Neo-Aramaic (NENA), varieties of which have been in contact with Iranian languages (mainly varieties of Kurdish) for extended periods of time.[31] One particular community, that of Sulaymaniyah for instance, saw contact between Sorani Kurdish and the local variety of Jewish NENA from around 1784, the foundation of the community, until the emigration to Israel of the last speakers in the early 1950s (cf. Khan 2007:198). At what point in this almost two-hundred-year-long history the NENA verbal system adopted the split-ergative pattern of Sorani cannot be determined.[32] Examples (6–8) illustrate the commonalities between the two patterns, in both of which verbal affixes show ERG–ABS characteristics. The status prior is not documented, but (7) provides an analogous construction in the present, which follows a NOM–ACC pattern.[33]

(6) *ema hamu rožek a=mān-gayānd-(i)n   bo madrasa*
    1PL all   day   IPFV=1PL.OBL$_A$-take.PST-3PL.NOM$_O$ to school
    "We used to take them to school every day" (Sorani; Karimi 2014:232)

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[30] Strictly speaking, the alignment pattern is NP-split ERG–ABS, with first- and second-person singular pronouns following NOM–ACC alignment instead; cf. e.g. Laughren (2017).

[31] For a detailed study, cf. Coghill (2016). In many cases, the specificities of these complex socio-historical relationships between these speaker communities are not well attested; Noorlander (2014:203) believes it safe to assume, however, that uninterrupted contact between the two languages can be assumed on the whole for the past 2′500 years.

[32] It is worth noting that the split-alignment is noticeable only in the verbal inflection and not in the nominal system, however; cf. Bynon (1979:215–7; 1980:154–8); Jügel (2009).

[33] While in both languages, agreement marking is achieved by means of affixation, the patterns differ. Sorani uses one slot before and one after the verbal root; NENA has two subsequent slots after the verbal root. In both cases, the sequence and type of affix are relevant: note that in NENA the suffixes take different forms, depending on whether they are in direct or oblique case, and that the order of Agent and Object inverts across the two verbal stems.

(7) *baxt-ăke   barux-ăwal-i   garš-á-lu*
   woman-DEF friend-PL-1SG.POSS pull.PRS-3SG.F.DIR$_A$-3PL.OBL$_O$
   "The woman pulls my friends." (NENA; Doron & Khan 2012:227)

(8) *baxt-ăke   barux-ăwal-i   gərš-í-la*
   woman-DEF friend-PL-1SG.POSS pull.PST-3PL.DIR$_O$-3SG.F.OBL$_A$
   "The woman pulled my friends." (NENA; Doron & Khan 2012:228)

In all three examples, alignment is expressed by verbal agreement markers, whose form and position play a crucial role. The difference between (7) and (8), for instance, consists in the sequence A–O for the present, but O–A for the past in the verbal affixes, and the use of agentive or objective forms of these affixes.

The NENA data highlights three points of interest for the typological study of alignment change. From a linguistic perspective (and together with the other cases presented above), it demonstrates the diversity of expression of morphosyntactic alignment (nominal cases, agreement affixes, etc.) and thus the importance of presenting, as part of the typological discussion, at least minimal examples of the different patterns surveyed. Secondly, as far as extra-linguistic information is concerned, the Sorani–NENA contact situation illustrates once more the definitional difficulties that arise when dealing with complex situations: while the variety in question here has a reasonably well-defined history with more or less concrete dates, it is impossible to say with any certainty whether contact prior to the establishment of the above-mentioned community had taken place and whether the potential for linguistic interference was thus even greater. Thirdly, as in the case of Classical Armenian above, the uncertainty concerning the onset of change is prevalent in this contact scenario, too; in all likelihood, the same is true for all scenarios where contact involves ancient, medieval and early modern languages with a limited written tradition or where documentation is limited owing to the sub-literary status of at least one of the languages involved.

This brief presentation and discussion of some illustrative data has served to highlight both the diversity of situations and manifestations of change that a typology of contact-induced change has to deal with, and to show some of the inherent problems regarding extra-linguistic data on the basis of specific scenarios rather than just in the abstract. The next section discusses what tentative proposals for correlations and general insights into contact-induced alignment change may be gleaned even from the small convenience sample surveyed here.

5.3. Discussion

The goal of the final part of this case study is to discuss any potential correlations between the different data presented above and in Table 1 and any insights into contact-induced change that might be gleaned.

First, one absence needs to be addressed, namely that of the 'date of change' as mentioned in Section 3 and Section 5.1 above. Here, the problem lies with the available data, which for most of the scenarios listed (barring those discussed in Section 5.2) do not allow even for an estimation of the time of change, either because no study in that direction has been undertaken or because no data is available. For this reason, languages with a limited written tradition can be equally affected as those with a rich literary history.[35]

At the same time, the data concerning the absolute duration of contact required for such alignment changes to take place indicates that even relatively short contact periods (as little as two generations

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[34] These examples are from a closely related variety from Sanandaj.

[35] Where no such data is available, nothing can be done; in those cases where data is available, however, research in this direction should be encouraged, even if only to further the understanding of contact-induced alignment change.

in the case of Gurindji Kriol) can suffice. The sample is, of course, too small and diverse to make any definitive statements, but such data does call for a re-evaluation of some long-held tenets concerning the extent of contact required for system-level syntactic change such as this (cf. e.g. Thomason & Kaufman 1988:94).

As regards the relative status of donor to recipient language in matters of prestige, there appears to be a tentative correlation between lower relative prestige ($\approx$ substrate) and a change in morphosyntactic alignment in favour of or motivated by the prestige contact language. This correlation is, however, very tentative indeed as contact scenarios differ and social value attributed to a language is not always clearly expressed in the references (or historically deducible).[36]

The types of change resulting from contact, in turn, are quite diverse. There is an overall tendency to develop more NOM–ACC features as evidenced by more than half of the sample,[37] as well as a trend away from the typologically less common alignment patterns like NTR and TRI.[38] As has been pointed out above, however, at least some of these changes only represent stages in a more complex alignment-change process. Of particular interest are those changes towards ERG–ABS alignment, since they illustrate, contrary to historical postulates,[39] that even in a non-genetic development such less common changes can occur.

Another potential correlation—and in equal measure an underlying problem—arises from the geographical distribution of the scenarios discussed here. The Middle East, the Indian Subcontinent and Australia are well represented in this convenience sample, at least in part because information about contact-induced alignment change in the languages of these regions was more readily obtainable than for others, but presumably also because they represent areas with a great density of different and diverse languages as well as similar geographies.[40] By contrast, data from Africa, Europe and the Americas was less readily retrievable, either owing to the absence of this particular change there or different ways of referring to it.[41] In any case, it is clear that much work remains to be done in this direction, either to expand the dataset in order to ensure representativeness or to ascertain that this type of change is indeed very limited.

Finally, one question and one remark remain to be discussed. The remark regards the complexity of such changes as well illustrated by the case of Nepali, which acts as the donor language for Magar, but has itself been influenced by Newari; this illustrates clearly that any language can occupy different roles, either in sequence or simultaneously, in the same or different contact situations. This poses, of course, a significant complication in terms of the relative chronology of changes, but is a reflection of the complex nature of language use and therefore cannot be ignored. In turn, the remaining question regards the difference between (regional or supra-regional) prestige languages associated with commerce alone ($\approx$ *linguae francae*) and the language of politically dominant communities, esp. in the context of colonialism; the fact that the influence of Australian English has in at least two cases led to alignment change makes it worth enquiring whether other

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[36] In some cases, even the description of the type of change is so vague that it is unclear whether it should be taken into account: '[I know of] a Martuthunira/Kurrama speaker [who] levelled the tripartite case-marking system of Thalanyji towards something more closely resembling the consistent accusative alignment of his primary lects' (Dench 2001:109–10).

[37] This includes changes like ERG–ABS→^{S}ERG–ABS since such a development indicates that at least part of the agreement pattern has switched to NOM–ACC.

[38] A distinction needs to be made here between nominal and pronominal marking, where NTR alignment is, in fact, most common (= no morphological difference is made between S, A, and O), and verbal agreement with one of the participants, where NOM–ACC is most common; for the present purpose, the latter is intended.

[39] On these and the diachronic dimensions of morphosyntactic alignment in general, cf. Dixon (1994:182–206); at least in part, this goes back to the remark by Moravcsik (1978:237) that all so-called ergative languages have NOM–ACC features, while the converse is not true.

[40] In all cases, the areas present difficulties to travellers, either owing to desert or desert-like climates or to mountainous terrains—or both.

[41] That language contact has resulted in significant systemic changes in the languages of these regions is beyond question. The existence of mixed languages such as Michif (Bakker 1997) or the creation of a gender system in proto-Chinookan under the influence of Coast Salish languages (Silverstein 1974, 1977) is evidence thereof.

colonial languages are equally or more prone to cause alignment change—or indeed other types of change.[42]

This small case study is inevitably too limited to draw any meaningful or valid conclusions from it. It has, however, highlighted in a concrete sense three things: firstly, the need for more data, if it is available or can be gathered; secondly, the need for data on changes of this type to be recorded in a meaningfully accessible and systematic fashion; thirdly, the data-related issues that arise in recording such systematic information when dealing with historical languages or those with a limited written tradition. On its own, this case study is little expressive other than in illustrating these points; once expanded, if that is possible, or in combination with other comparable datasets, however, even changes with such a limited exponence can be of interest to explore the various correlations that certain variables might have with others, whether specifically recorded as suggested above or derived secondarily from surveying the datasets (e.g. geography or socio-historical contexts).

6. CONCLUSIONS: THE PATH AHEAD

The goal of this paper was to discuss the advantages and limitations of a typological approach to contact-induced language change, to show what specific variables ought to be taken into account in doing so, how they might be parameterised and what the theoretical and practical issues in doing so would be. It has sought to illustrate these more general points by applying them to a case study of contact-induced morphosyntactic alignment change based on a convenience sample of 12 languages.

In this discussion, it has been argued that, in analogy to already existing typological databases, such a typology should be built in a similar fashion, but systematically take into account more extra-linguistic variables, particularly as regards time-depth of contact, the time post-contact at which the change was first recorded and the socio-historical relationship between these languages. On the basis of these data as well as descriptions of the individual data points from a linguistic and socio-historical vantage point and descriptions of the change more broadly, such surveys could be used to better understand the circumstances of and correlations with particular kinds of contact-induced change.

In order to achieve this, however, data concerning such changes must first be made more readily accessible and systematised. As the case study of morphosyntactic alignment change has illustrated, a dearth of descriptions combined with limited or non-specific data on extra-linguistic variables is currently a strong limiting factor to such an endeavour. Even where data is available and readily discoverable, its nature at time prevents analysis to the desired degree of detail: historical languages, sub-literary varieties and languages with a largely oral culture or otherwise limited written tradition pose difficulties as regards the recuperation esp. of extra-linguistic data, even though the linguistic side of the change may be reasonably well understood.

In approaching language contact in general and contact-induced changes in particular from a typological perspective, researchers stand to gain a valuable resource that systematically codifies already won insights in this field and in so doing makes them more accessible to the community at large. At the same time, it allows for correlations or implications between different changes, variables and parameters to be observed, thus potentially being a motor of further research and discovery itself.

The path ahead towards such a typology of contact-induced language change therefore lies in the identification of an initial set of well-attested changes, the creation of a database on this basis and a pilot study to illustrate on a larger scale and with more data the advantages and insights such an approach has to offer.

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[42] For an Australian perspective on this question, see the volume edited by Meakins & O'Shannessy (2016).

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