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Mark Dingemanse, N. J. Enfield

Other-initiated repair across languages: towards a typology of conversational structures

Abstract: This special issue reports on a cross-linguistic study of other-initiated repair, a domain at the crossroads of language, mind, and social life. Other-initiated repair is part of a system of practices that people use to deal with problems of speaking, hearing and understanding. The contributions in this special issue describe the linguistic resources and interactional practices associated with other-initiated repair in ten different languages. Here we provide an overview of the research methods and the conceptual framework. The empirical base for the project consists of corpora of naturally occurring conversations, collected in fieldsites around the world. Methodologically, we combine qualitative analysis with a comparative-typological perspective, and we formulate principles for the cross-linguistic comparison of conversational structures. A key move, of broad relevance to pragmatic typology, is the recognition that formats for repair initiation form paradigm-like systems that are ultimately language-specific, and that comparison is best done at the level of the constitutive properties of these formats. These properties can be functional (concerning aspects of linguistic formatting) as well as sequential (concerning aspects of the interactional environment). We show how functional and sequential aspects of conversational structure can capture patterns of commonality and diversity in conversational structures within and across languages.

Keywords: typology, conversation, repair

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1 Other-initiated repair

In this special issue we present results from a comparative study of other-initiated repair, a domain central to human communicative competence. Other-initiated repair is a crucial part of a system of practices that people use to deal with problems of speaking, hearing and understanding in social interaction (Schegloff, Jefferson, and Sacks 1977). Other-initiated repair links language, mind, and social life. As a linguistic system, it combines a remarkable unity in broad typological terms with considerable diversity in local linguistic resources. As a mechanism for negotiating mutual understanding, it provides a window onto the social mind. As an organisation offering opportunities to redo, repair, redress or reorient social actions, it plays an important role in human sociality.

Consider the following extract from a conversation in a Siwu-speaking family in Ghana.[1] Sesi and his Mum are sitting outdoors when Mum addresses a request to him (line 1). At line 2, he initiates repair with the question word *be* 'what?'. Mum provides a repair solution by repeating the request and spelling out some details. Then Sesi carries out the requested action.

1 Transcriptions for data extracts here and in the rest of this issue are based on the conventions specified in Jefferson (2004). Glosses for languages other than English follow the Leipzig glossing rules where possible (Comrie, Haspelmath, and Bickel 2004). Language-specific glossing conventions and abbreviations can be found in the individual chapters.

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***Corresponding author: Mark Dingemanse:** Max Planck Institute for Psycholinguistics, Wundtlaan 1, Nijmegen, 6525XD the Netherlands, +31-24-3521593, E-mail: mark.dingemanse@mpi.nl
N.J. Enfield: Max Planck Institute for Psycholinguistics & University of Sydney, E-mail: nick.enfield@sydney.edu.au

Extract 1: Siwu (Neighbours_4875900 from Dingemanse, this issue)

1	Mum	Sesi su ɛɛ̀ iraɔ̀ tã mɛ	T-1
		PSN take HES thing.INDEF DAT me	
		Sesi take uh: the thingy for me	
2	Sesi	be:	T0
		what:Q	
		what	
3	Mum	su kadadìsɛ̃ĩ̀bi bɔ mɛ.	T+1
		take small.pot.DIM bring me	
		take the small pot and bring it to me.	
4	Sesi	((complies by bringing small pot))	

Together, repair initiation and repair solution form a *side sequence* (Jefferson 1972; Schegloff 1992): a momentary departure from the main course of the interaction. The central pivot in a sequence of other-initiated repair sequence is the turn in which repair is initiated (T0). This turn suspends the ongoing sequence, pointing back to some troublesome prior talk (T-1) and making relevant a repair solution (T+1) by the other party. When the solution is accepted, the side sequence is closed and the main sequence can be picked up again. In this case, the main business is the request at line 1, halted while the repair side sequence plays out, and then picked up by means of compliance with the request at line 4.

With two parties contributing to the side sequence, other-initiated repair is a *cooperative behavior* that shows us how people work together to reach mutual understanding in communication (Clark and Schaefer 1987; Schegloff 2000; Robinson 2014). It involves asymmetries in knowledge states that cannot be navigated without a high degree of social intelligence and sensitivity. In this example, Sesi's repair-initiation makes public that he has some trouble with the prior turn which requires the cooperation of Mum to be resolved. In her repair solution, Mum redoes the prior turn, spelling out some details that were underspecified. The design of this repair solution takes into account the possibility that Sesi did not have just a problem with hearing the talk, but also with understanding aspects of it.

The systematic relations between the three turns, and especially between the formats of repair initiation and solution, show that other-initiated repair has *system properties* (Schegloff, Jefferson, and Sacks 1977; Schegloff 1997a; Dingemanse, Blythe, and Dirksmeyer 2014). In initiating repair with the question word *be* 'what?', Sesi has selected one item from a larger system of linguistic resources. The choice for this question word over possible others (and for a question word over possible other formats for initiating repair) is informative about the nature of the trouble, and also about the type of solution it makes relevant. Formats of repair-initiation build on local linguistic resources; other-initiated repair is a system for maintaining mutual understanding.

Other-initiated repair is a cooperative behavior. This explains why we look at it in records of naturally occurring social interaction. An other-initiation of repair establishes a side sequence. This means it provides a stable context for comparison in different linguistic and cultural settings. Sequences of other-initiated repair have system properties. This motivates a closer look at the relation between universal communicative needs and the linguistic systems that enter into the design of formats for repair initiations and solutions. Together, these points sum up the most important themes addressed in the articles in this special issue.

2 A comparative perspective

Research on repair started nearly forty years ago (Schegloff, Jefferson, and Sacks 1977; Garvey 1977) and has mostly focused on English and other major languages (for recent overviews, see Hayashi, Raymond, and Sidnell 2013; Kitzinger 2013; Fox, Benjamin, and Mazeland 2013). Early work mapped out a possibility space in terms of who initiates repair (self or other), who provides the repair solution (self or other), and where the repair is initiated (same turn, next turn, or after next turn) (Schegloff, Jefferson, and Sacks 1977; Schegloff

1992; 1997b). Psycholinguists and interactional linguists have had a strong interest in self-repair, which has led to several experimental and large-scale comparative studies (Fromkin 1971; Levelt 1983; Fox, Hayashi, and Jasperson 1996; Fox et al. 2009). Other-initiated repair has also been relatively well-studied, especially in English conversations (Schegloff 1993; 1997a; 2000; 2005; Clark and Schaefer 1987; Drew 1997; Lerner 2004; Curl 2005; Koshik 2005; Robinson 2006; 2014; Benjamin 2013, among others).

A growing number of studies examines other-initiated repair in languages other than English. Some studies offer descriptions of the the larger system of other-initiated repair in particular languages (e.g., Moerman 1977 on Tai; Obeng 1992 on Akan; Kim 1999 on Korean; Zhang 1999 on Mandarin Chinese; Svennevig 2008 on Norwegian; Suzuki 2010 on Japanese). Others focus on specific practices and actions, from the interaction of repair formulation and joint attention in German (Egbert 1996) to the use of repeat-formatted repair initiations in Mandarin (Wu 2006), and from the repair of person references in Yélî Dnye (Levinson 2007) to a practice for offering insertable elements in Japanese (Hayashi and Hayano 2013).

Despite the growing availability of interactional data across languages, there have been few attempts to systematically compare other-initiated repair to tease apart language-particular practices from language-general strategies. It is sometimes assumed that repair, as one of the generic organisations for conversation (Schegloff 2006), is uniform across linguistic systems or societies. But this is not something we can take for granted given the world's cultural and linguistic diversity (Nettle 1999; Croft 2001). There is no escaping the fact that other-initiated repair is implemented using resources that are themselves part of linguistic systems that can be highly divergent (Sidnell 2009a), from question words to apologies and from final particles to noun class morphology. While some early comparative work has emphasized uniformity of the practices used (Moerman 1977; Schegloff 1987), other work has suggested cultural and linguistic diversity (Ochs 1984; Besnier 1989). A systematic comparative study can illuminate the relation between unity and diversity in this domain.

It is hard to imagine any human culture without a need for some procedure of communicative repair (Schegloff 2006), so other-initiated repair can be expected to be found, in one form or another, universally. Other-initiated repair can occur essentially after any turn in conversation (Schegloff 1982). Existing descriptions from across languages suggest that it is implemented in interaction using systematic sets of conventionalised formats. As Schegloff notes, "it appears that this domain of practices of talking-in-interaction —other-initiation of repair and its sequelae— can be "qualified" for quantitative treatment" (Schegloff 1993, 115). Functionally important, sequentially well-defined, and interactionally systematic, other-initiated repair is thus well suited for a comparative approach.

The project we report on here is comparative and quantitative by design. It recognises a potential tension between uniformity and diversity across languages and cultures, and investigates systems of other-initiated repair with an eye for common organisational structures and language-specific features. Can we discover core properties of a system for other-initiated repair? To what extent might these properties be shaped or constrained by local linguistic resources? Can we extend linguistic typology beyond the clause to describe and explain unity and diversity in conversational structure? We address these questions by combining an explicit comparative framework with sensitivity to language-specific resources.

As a comparative investigation of a fundamental domain of language usage, our work is akin to other cross-cultural studies of patterns of language use, including the ethnography of communication (Hymes 1964; Bauman and Sherzer 1989), politeness studies (Brown and Levinson 1978), cross-cultural pragmatics (Blum-Kulka, House, and Kasper 1989; Wierzbicka 1991), interactional linguistics (Ochs, Schegloff, and Thompson 1996; Selting and Couper-Kuhlen 2001), and usage-based studies of linguistic structure (Hopper and Thompson 1980; Bybee 2002; 2010). What unites these approaches is their comparative outlook and their attention to the systematicity of patterns of language usage, which has led to the description of language-specific systems but also to the discovery of generalisations that transcend languages and cultures. In the current project, we build on insights generated by these approaches and we also take advantage of advances in methods for data collection and analysis (Zimmerman 1999; Sidnell 2007; 2009b; Enfield, Stivers, and Levinson 2010; Enfield 2013a; Dingemanse and Floyd 2014). We carry out a systematic comparative investigation of other-initiated repair, using a combination of qualitative and quantitative analysis, and using insights from conversation analysis, linguistic typology, the ethnography of speaking, and cross-cultural pragmatics.

2.1 Background to the project

The papers in this issue are written using a common framework for data collection and analysis. Table 1 lists the languages included in the comparative project along with the contributors.

Table 1: Languages and contributors in this special issue

Language [ISO code]	Main place used	Contributor
Argentine Sign Language [aed]	Argentina	Elizabeth Manrique
Cha'palaa [cbi]	Ecuador	Simeon Floyd
English [eng]	U.K.	Kobin H. Kendrick
Icelandic [isl]	Iceland	Rósa S. Gísladóttir
Italian [ita]	Italy	Giovanni Rossi
Lao [lao]	Laos	N. J. Enfield
Murrinh-Patha [mwf]	Northern Australia	Joe Blythe
Russian [rus]	Russia	Julija Baranova
Siwu [akp]	Ghana	Mark Dingemanse
Yélî Dnye [yle]	Rossel Island, PNG	Stephen C. Levinson

Every contributor worked with a video corpus of maximally informal social interaction, in most cases collected in fieldwork by themselves. From this video corpus, each contributor collected other-initiations of repair ('cases'). The cases were collected by exhaustively sampling a subset of the corpus in a procedure designed to maximise coverage and representativeness. Ten-minute segments from different interactions were systematically surveyed and every possible sequence of other-initiated repair in these segments was selected for further inspection (Table 2). The total amount of data sampled this way amounts to 50 hours, or over 4 hours per language on average.

Table 2: Key properties of the data collected for the studies in this issue.

- Recordings were made on video.
- Informed consent was obtained by those who participated.
- Target behaviour was spontaneous conversation among people who know each other well (family, friends, neighbours, acquaintances), in highly familiar environments (homes, village spaces, work areas).
- Participants were not responding to any instruction, nor were they given a task—they were simply aware that the researcher was collecting recordings of language usage in everyday life
- From multiple interactions that were collected in the larger corpus, the selection for analysis in this study was of a set of 10-minute segments, taken from as many different interactions as possible (allowing that some interactions are sampled more than once), to ensure against any bias from over-representation of particular interactions or speakers.

After selecting possible sequences, there was an intensive process of analysis and systematic exclusion. This was done iteratively and with constant collaborative input in group data workshops that combine elements from conversation analytic data sessions (ten Have 2007) and typological approaches to language comparison (Croft 2003; Haspelmath 2010). The goal of these collaborative data sessions was to arrive at a common understanding of the phenomenon, to assemble a collection of core cases of other-initiated repair for every project language, and to define a set of concepts for cross-linguistic comparison.

The sequence in Extract 1 exemplifies the primary target of our comparative study (further examples are given in §3.2 below). The core of other-initiated repair can be defined in language-neutral terms as follows: a sequence in which a turn T0 signals some trouble in a prior turn T-1 and is treated as making relevant the provision or ratification of a repair solution in a next turn T+1.

What determines whether a sequence is included in the sample as a core case of other-initiated repair or not? How the possible repair initiation is treated by the speaker of the prior turn is crucial: if that speaker treats the turn as a repair initiation then the case is included as a core case. This is the next-turn proof procedure, a basic methodological tool of conversation analysis (Sacks, Schegloff, and Jefferson 1974, 728–9; Moerman and Sacks 1988).[2] All contributors used this procedure to establish a collection of core cases, distinguishing them from boundary cases and peripheral actions. Across the languages included in the project, the number of core cases of other-initiated repair in a language ranges from 82 (Yélî Dnye, Levinson this issue) to 227 (English, Kendrick this issue), with a median of 195 cases per language. The total number of core cases is 2053.

Core cases of other-initiated repair were distinguished from cases in which people use similar practices for actions beyond repair — sometimes instead of, and at other times in addition to, initiating repair. While collecting core cases, all contributors kept track of practices and actions bordering on other-initiated repair. We found that types of actions in the periphery of other-initiated repair are quite similar across languages, with one class of cases revolving around the signaling of upcoming disalignment (Schegloff 1997a) and another class around responsive actions, including news receipts and the signaling of surprise or disbelief (Thompson, Couper-Kuhlen, and Fox in press).

News receipts, or responses to informings, are often similar to the resources used for repair initiation in that they are formulated as questions about some prior talk. Particularly close to other-initiations of repair are news receipts that ostensibly question the veracity of the prior talk, as in the example below. Speaker A is telling a story about the skills of a colleague who learned Dutch as a second language. At line 2, B produces a question-formatted news receipt *echt* 'really?'. Speaker A responds that this is, indeed, inconceivable — showing that she takes B's question to be an assessment of the newsworthiness of the claim, not an indication of a problem in hearing or understanding. Cases like this were found in all of the languages, but not included in the core collections of sequences of other-initiated repair analysed in the papers in this issue.

Extract 2: Dutch (IFADV3_308390)

1 A En de meeste wisten niet eens dat ze uit het buitenland kwam.
and DET most know:PAST not whether it from DET abroad come:PAST
And most {of them} didn't even know that she was from abroad.
2 B Echt?
really
Really?
3 A 't is onvoorstelbaar ja.
that is inconceivable yeah
Yeah, it's inconceivable.

Related to this is the use of prosodically marked versions of formats for repair initiation to indicate surprise or disbelief, either instead of or in addition to initiating repair (Selting 1996). The following example from Lao (Enfield, this issue) is typical. Speaker B's question at line 2 is delivered in a prosodically marked way. It repeats material from the prior turn and adds a particle marking the astonishment about the claim. In response to it, A provides a confirmation.

2 Technically, this is a disproof procedure: we use the speaker's response to tacitly categorise the prior turn as an other-initiation of repair in the absence of evidence to the contrary. This is not a conclusive proof because in actual conversations, "action ascription is always provisional, adequate rather than consummate" (Enfield 2013b, 88). Turns are only doing some action in sofar as they are taken by the other to do that action.

Extract 3: Lao (CONV_050815a_1140956)

1	A	lòòj4 laan4	T-1
		100-million	
		'((They paid)) a hundred million.'	
2	B	lòòj4 laan4 phun4 naø	T0
		100-million DEM.FAR TPC.PERIPH	
		'A HUNDRED MILLION?!'	
3	A	qee5	T+1
		INTJ	
		'Yeah.'	

Because speaker A provides a confirmation of the polar question in line 2, the sequential structure of this case is similar to what is often called a candidate understanding, and the sequence is therefore included in the core collection of cases of other-initiated repair. But because the delivery and design of B's turn at line 2 indicate that more is being done than just initiating repair, it is additionally marked as a case in which the techniques of repair initiation are used to show surprise or disbelief. The process of narrowing down to a collection of core cases and keeping track of ancillary actions is described in more detail in some of the contributions to this special issue; additionally, many of the chapters contain separate sections on the use of the techniques of other-initiated repair in the service of other actions.

The collaborative analytic approach taken in this project has led to a number of methodological and analytical advances in the comparative study of conversational structure. In the following sections we describe our approach to comparing conversational structures across widely different languages. Elsewhere in this issue, this approach is embodied in a common coding scheme that all contributors used to aggregate cases and categorise aspects of them (Dingemanse, Kendrick & Enfield, this issue).

3 Analysing formats in terms of their constitutive properties

Other-initiation of repair can be carried out using different formats: ways to indicate problems in prior talk, employing a range of linguistic resources and interactional practices. Early work on other-initiated repair in English proposed an inventory of five formats for repair initiation (Schegloff, Jefferson, and Sacks 1977, 367–8):

1. *Huh?* and *What?*;
2. the question words *Who?*, *Where?*, *When?*;
3. partial repeat of the trouble-source turn plus a question word;
4. partial repeat of the trouble-source turn;
5. *Y'mean* plus a candidate understanding of the prior turn.

Further studies of English have largely confirmed this list, with minor adjustments[3] (Schegloff 1997a; Sidnell 2010; Kitzinger 2013; Benjamin 2013; Kendrick, this issue), so that it has become an established taxonomy of formats for other-initiation of repair in English. Formats that appear to fit various parts of this taxonomy have been identified across several languages, for instance Tai (Moerman 1977), Korean (Kim 1999) and Japanese (Suzuki 2010).

One approach to cross-linguistic comparison might be to aggregate and classify cases according to this taxonomy, locating equivalents of the five formats in other languages. However, questions of interpretation and commensurability arise. Some of the formats are characterised in terms of what type of action they make relevant next ("question word", "candidate understanding") while others are described in terms of their linguistic design or how they relate to the prior turn ("Huh?", "partial repeat"). This makes straightforward

3 One such adjustment concerns the fact that that the *y'mean* preface of some candidate understandings may play the role of signalling that a repair initiator is not contiguous to the source of the trouble (Benjamin 2012). In any case it appears that the *y'mean* preface is much more infrequent than assumed (Kendrick, this issue).

cross-linguistic application difficult: for instance, it is unclear whether the format labelled as "partial repeat of the trouble-source turn" is supposed to be similar or different in sequential implicativeness to the format labelled as "candidate understanding"; and whether candidate understandings may or may not involve repetition.[4]

The five formats identified by Schegloff et al. (1977) were not offered as cross-linguistic categories. They originated as inductive generalisations about social interactional practices in a corpus of certain varieties of English. Accordingly, they do not (and were not meant to) capture all relevant properties of the design of repair initiators in other languages. The "partial repeat" format as described by Schegloff et al. (1977) may be a coherent category insofar as it captures a well-described practice in English, but that says little about its cross-linguistic applicability. It is an open question whether other speech communities make the same distinctions in their inventories of formats, and how the local linguistic resources they employ compare to the resources of English. Descriptions of systems for other-initiated repair systems should be sensitive to possible diversity in linguistic resources.

If the known English taxonomy of formats for other-initiation of repair cannot be applied cross-linguistically, this does not mean that systems of formats are incommensurable across languages. Although radical incommensurability might be a logical possibility in some structuralist conceptions of language (Croft 2001; Sidnell 2007), deeper analysis of the properties of formats for repair initiation leads to a different conclusion. Certain properties can be traced across formats and across languages. Using these properties, we can capture commonalities and differences between formats in principled and precise ways.

Consider the potential ambiguity between the "partial repeat" and "candidate understanding" formats for English noted above. To resolve this ambiguity, we do not attempt to classify cases as *either* a partial repetion *or* a candidate understanding, but instead ask two questions which can be answered independently from each other: "Does T0 include any repeated material from T-1?" and "Does T0 make (dis)confirmation relevant?". These are the questions we ask in our coding scheme for other-initiated repair (Dingemanse, Kendrick & Enfield, this issue). The matrix of answers to these questions makes visible the ambiguity just described: a "candidate understanding" by definition makes confirmation relevant, while it may or may not feature some repeated material from T-1. On the other hand, a "partial repetition" by definition features repetition, while it may or may not make confirmation relevant in T+1 (Table 3).

Table 3: Two properties of restricted repair initiators and their relations to two formats identified in English conversations, showing potential ambiguity or overlap in application.

Format	Repetition	Confirmation
partial repeat $_{\text{English, SJS1977}}$	■	◩
candidate understanding $_{\text{English, SJS1977}}$	◩	■

At the root of this matter is the fact that repetition, one of the most basic operations on talk, can serve multiple purposes in repair-initiation (Jefferson 1972; Sacks 1992; Wu 2009; Dingemanse, Blythe, and Dirksmeyer 2014). It can be used as a frame that points to some material in the trouble-source turn, or it can itself present the material needing repair; and depending on subtle details of linguistic implementation, it may be treated as either inviting clarification or specification, or as making confirmation relevant.[5]

4 The ambiguity is demonstrated by the fact that two recent accounts of the taxonomy of English formats diverge in their characterisation of these formats (Sidnell 2010; Kitzinger 2013). Sidnell restricts examples of "repeats without question word" to cases in which confirmation is not relevant, while allowing "understanding checks" to also feature repetition (Sidnell 2010, 128–133). Kitzinger's choice is essentially the mirror image of this, allowing that some "repeats" make confirmation relevant, while restricting examples of "candidate understandings" to cases that do not feature repetition (Kitzinger 2013, 249–250).

5 For English, some of the relevant distinctions are laid out in more detail by Benjamin & Walker (2012); and see Kendrick (this issue).

When we cast the relevant dimensions of variation as properties that formats may or may not have, it becomes possible to articulate and compare differences.

An approach that analyses formats in terms of their constitutive properties can capture facts about possible formats without shoehorning them into a list of types based on one language. For instance, Mandarin Chinese has two distinct formats involving repetition (Wu 2009): the *question-intoned repeat* and the *a-suffixed repeat*. The first makes relevant clarification or specification of the repeated material; the second is treated as making confirmation relevant. The term *candidate understanding* is reserved, by Wu, for the logical third option: formats that make confirmation relevant but do not feature repeated material from the trouble-source turn. Table 4 shows how these three formats populate the space defined by the two properties.

Table 4: Three restricted repair initiation formats identified in Mandarin Chinese conversations (Wu 2009) and their analysis in terms of two properties of repair initiators.

Format	Repetition	Confirmation
question-intoned repeat $_{\text{Mandarin, Wu 2009}}$	■	□
a-suffixed repeat $_{\text{Mandarin, Wu 2009}}$	■	■
candidate understanding $_{\text{Mandarin, Wu 2009}}$	□	■

A further property of restricted type formats for repair initiation concerns the use of question words, which (for reasons of sequential implicativeness) is mutually exclusive with the property of making confirmation relevant. Extending the matrix, we can see how the following distribution of properties can capture the four restricted formats of English as presented in Sidnell (2010):

Table 5: Three properties of restricted repair initiators and four formats for repair initiation, showing the relation between the distribution of properties and format design.

Format	Question	Repetition	Confirmation
question word $_{\text{English, Sidnell 2010}}$	■	□	□
partial repeat with question word $_{\text{English, Sidnell 2010}}$	■	■	□
partial repeat without question word $_{\text{English, Sidnell 2010}}$	□	■	□
understanding check $_{\text{English, Sidnell 2010}}$	□	◩	■

It should be possible to flesh out a table like this so as to exhaustively specify the parameters for comparison and lay out the full possibility space of formats for repair initiation. That remains to be done on the basis of broader comparative work, and will have to overcome challenges like multidimensionality, co-dependence and complementarity of properties and feature values. This kind of table, of course, is only one way of visualising the diversity and its dimensions; what is important is the underlying conceptual approach, which can be used to systematically compare formats and format types.

3.1 Which properties work for comparison, and why?

Properties like ‘repetition’ and ‘question words’ help to capture salient dimensions of variation within and across languages, but they do not fully specify all relevant features of the formats. This is because not all facts about the linguistic design of repair initiation formats can be framed in terms of properties with cross-linguistic application. For instance, a full description of the “question-intoned repeat” of Mandarin

(Wu 2009) would have to be grounded in the language-particular properties of questioning intonation in Mandarin Chinese — properties which, at that level of description, are not necessarily open to direct cross-linguistic comparison. Or, to take examples from the papers in this issue, if we want to capture the details of a format like the "hanging repeat" of Italian (Rossi, this issue) and the "*vaa3* candidate understanding" of Lao (Enfield, this issue), we need to refer to finer points of language structure like the prosodic system of Italian and the paradigm of final particles in Lao. As with all items in linguistic systems, from phonemes to phrasal constructions, formats for initiating repair are best seen as part of a language-specific inventory.

Superficial similarities can even be meaningless or positively misleading. The high-rise intonation contour of the Italian "hanging repeat" may sound similar to that in the English "high-rise fall repetition" format (Benjamin and Walker 2012), but they are very different in terms of their linguistic meaning and interactional import. In Italian, this contour contrasts with two other contours, and combined with a partial repetition of material from the trouble-source turn, it prompts the other participant to fill in the rest. In English, the high-rise fall contour combines with partial repetition to put forward the repeated material as being in need of correction (Benjamin and Walker 2012). "Use of high-rise intonation" is not, therefore, a property that sheds light on the cross-linguistic organisation of formats for other-initiation of repair: it has the same status as drawing attention to the fact that the use of the sound /s/ is common to the English plural and to the Catalan third person reflexive. It is difficult to apply surface characterisations of forms cross-linguistically; the most reliable comparative properties are those that capture facts about formats in language-agnostic terms.

How can we distinguish between language-specific details and language-agnostic properties? In pragmatic typology —as in any field of typology— this is done by taking stock of the diversity in the domain, finding the dimensions along which the variation appears to be structured, and capturing the variation in terms of properties that can be coherently applied across languages (Haspelmath 2010). This iterative process relies as much on in-depth linguistic and sequential analysis as on broad comparison of a diverse set of languages. The coding scheme underlying the comparative work reported in this special issue is one reflection of this iterative process: it formulates those properties that we have found to be applicable to cases of other-initiated repair across languages.

This way of proceeding is comparable with developments in the typology of grammatical relations. Take the notion of *subject*, defined —for English— by a combination of grammatical properties including verb agreement, case marking, and word order. For a long time it was presumed that the notion itself could simply be applied as a cross-linguistic concept. This changed when evidence emerged that 'subject' defined in this way could not be coherently applied to all languages, with crucial evidence coming from radically different languages like Mandarin (Li and Thompson 1981), Acehnese (Durie 1987), and Tagalog (Schachter 1976). "Subject" was clearly not a primitive that could be the basis for systematic comparison; instead, it had to be decomposed into different properties to make visible how languages converged or diverged from each other in marking grammatical relations (Li 1976; Keenan 1976; Dryer 1997). In a similar vein, here we propose that formats —the language-particular resources that interactional practices are made of— can be decomposed into constitutive properties that make it possible to see points of convergence and divergence.

The properties that can be reliably applied in a cross-linguistic examination of conversational structure are of two types: functional and sequential properties. *Functional properties* are aspects of linguistic form that can be characterised in semantic-functional terms. For instance, all known languages have ways to ask questions using category-specific interrogative words (Ultan 1978; Cysouw 2004; Enfield, Stivers, and Levinson 2010). The forms of these words are language-specific: the word for asking a question about a person is *who* in English, *phaj3* in Lao, and a sign WHO with eyebrows together and a head upward movement in Argentine Sign Language. Yet at a semantic-functional level all these can be characterised as question words, and the presence (or absence) of a question word is a property we can code for reliably across languages. Similarly, repetition is an operation on talk that can be recognised anywhere, and therefore can be used as a cross-linguistically applicable property of formats for repair-initiation.

Sequential properties are aspects of interactional structure that capture how the conversational practice under investigation relates to its sequential and interactional environment: how it ties back to prior talk (e.g., by using repetition or a category-specific question word) and what type of response it makes relevant

next (e.g., confirmation or clarification). Such properties can be applied cross-linguistically because social interaction everywhere is organised in terms of turns at talk and the sequential relations between them (Schegloff 2006; Levinson 2006; Stivers et al. 2009). Owing to the particular sequential structure of other-initiated repair (itself a side sequence embedded in a larger unit of conversation), sequential properties are particularly important in characterising the different types of possible formats. So let us say a bit more about them.

As far as sequential aspects are concerned, the possible formats for other-initiation of repair can be divided in two ways. One way is to focus on how the repair initiation points back to the trouble in the prior turn, T-1. This retrospective dimension gives us the distinction between *open* type repair initiators, which signal that there is some problem in the prior talk but leave open what or where it is, and *restricted* type repair initiators, which target some trouble in T-1 in a more specific way (Drew 1997). Another way is to focus on what kind of response the repair initiator makes relevant in T+1. This prospective dimension gives us a distinction between *request* type repair initiators, which ask for specification or clarification of something in the prior turn, and *offer* type repair initiators, which put forward a candidate hearing or understanding to be accepted (i.e. confirmed) or rejected (Schegloff 2004).[6] Each format for other-initiation of repair has retrospective aspects (how it targets trouble in a prior turn) and prospective aspects (what type of response it makes relevant in a next turn).

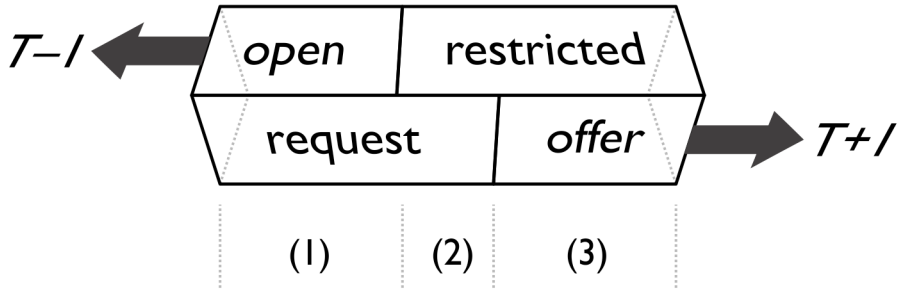

Figure 1: Two dimensions of formats for repair initiation. The distinction between open and restricted type formats is retrospective: it is about the nature and location of the trouble in prior turn. The distinction between request and offer type formats is prospective: it is about the nature of the response that is relevant in next turn. The two dimensions together define three basic types of formats for repair initiation: (1) open request, (2) restricted request, and (3) restricted offer.

Three basic types of repair initiators emerge from the cross-classification of these two dimensions: the open request type, the restricted request type, and the restricted offer type (Figure 1). Open request repair initiators (like 'huh?') typically target T-1 as a whole and make repetition and possibly clarification relevant in T+1. Restricted request repair initiators (like 'who?') typically target some aspect of T-1 and make repetition, clarification and/or specification of that aspect relevant in T+1. Restricted offer repair initiators (like 'Columbia?') typically target some aspect of T-1 by providing a candidate understanding, and they make confirmation or correction relevant in T+1.

We found these three basic types in all the languages in our study. We suggest that this three-fold distinction is a cross-linguistically viable taxonomy of repair initiator types. More abstract characterisations fail to uniquely pick out repair initiators, and point to the larger semantic-functional domain of questioning instead; more fine-grained characterisations quickly lead into language-specific territory. The linguistic design of the many formats that can be categorised as instantiating these three basic types combines cross-linguistic properties with language-particular resources.

6 We adopt the term /*open*/ from Drew (1997), but call his "closed" category /*restricted*/ to avoid confusion with the common linguistic distinction between open and closed form classes in the lexicon (see Enfield et al. 2013, 379n4).

3.2 Widespread format types for repair initiation

For a taste of some of the resources for repair initiation formats, consider the types listed in Table 6. This appears to offer a neat picture, but it abstracts away from language-particular texture. The items on the list are best seen as canonical types that fall out from some of the underlying properties tracked in the comparative project. This is why we call them *format types*, leaving room for more detailed language-specific descriptions of the actual *formats* in the individual chapters in this issue.

Table 6: Some basic format types for other-initiation of repair

Open. Open type repair initiators are requests that indicate some problem with the prior talk while leaving open what or where the problem is exactly.
• *Interjection*. An interjection with questioning intonation.
• *Question-word.* An item from the larger paradigm of question words in the language. Usually a thing interrogative, sometimes a manner interrogative.
• *Formulaic*. Expressions not incorporating interjection or question-word, often managing social relations or enacting politeness.
Restricted. Restricted type repair initiators restrict the problem space in various ways by locating or characterising the problem in more detail.
• *Request type (asking for specification/clarification)*. Typically done by content question-words, often in combination with partial repetition.
• *Offer type (asking for confirmation)*. Typically done by a repetition or rephrasing of all or part of T-1.
• *Alternative question*. Repair initiator that invites a selection from among alternatives.
Within restricted, *external* repair initiators address problems about unexpressed elements of T-1; this 'external' function can be performed by all of the listed format types for 'restricted'.

A common and widespread type of open repair initiator is an *interjection* like 'huh?' (Enfield et al. 2013; Dingemanse, Torreira, and Enfield 2013). Extract 4 provides an example from Lao (Enfield, this issue). Speaker A issues a directive to B, who initiates repair using *haa2* 'huh?'. In response to this repair initiator, A produces a simplified redoing of the trouble source turn.

Extract 4: INTCN_111204t_2026000 (Lao)

1	A	qaw3 vaj4 qaw3 vaj4	T-1
		take put.away take put.away	
		'Put ((them)) away, put ((them)) away'	
		((to someone in kitchen, referring to some bamboo shoots))	
2	B	haa2	T0
		INTJ	
		Huh?	
3	A	qaw3 vaj4	T+1
		take put.away	
		'Put ((them)) away.'	

Another common format type for open type repair initiation is based on a question-word. In the following example from Russian (Baranova, this issue), speaker B initiates repair using the thing-question word *chio*, a version of *shto* 'what?'. Speaker A respond with a slightly modified repetition of the trouble source turn.

Extract 5: 20120202_cooking_3_309900 (Russian)

1	A	Tebiazhe ka:mira snimaet	T-1
		(you-SG-ACC) camera film-3SG-PRS	
		The camera is filming you	
2	B	chio?	T0
		what:Q	
		What?	
3		(0.4)	
4	A	kamira snimaet	T+1
		camera film-3SG-PRS	
		The camera is filming.	

Most spoken languages feature both the interjection and question-word formats for open type repair initiation (Enfield et al. 2013 show this for 21 languages). A third type of format is less common: *formulaic* expressions that can be described as managing politeness and social relations (Robinson 2006; Dingemanse, Blythe, and Dirksmeyer 2014). Here is an example from English (Kendrick, this issue). Speaker A asks a question. After 0.4 seconds of silence, speaker B initiates repair using the expression *Sorry?*. In response to this, speaker A produces a repetition of the original turn, with slight modification.

Extract 6: RCE06_204000 (English)

1	A	Do you have any idea what her name was?	T-1
2		(0.4)	
3	B	Sorry?	T0
4	A	Do you have any idea what her na(h)me wa(h)s?	T+1

The format types exemplified above all indicate some problem in a prior turn while leaving open what or where it is. This is why we call them *open*. In contrast to these, *restricted* formats for repair initiation are more specific about the location and nature of the trouble. As seen above, different types can be distinguished on the basis of the kind of response they project in the next turn; the basic division is between restricted request type and restricted offer type. Extract 7 demonstrates a restricted request type format: a person-question word singles out an underspecified person reference in T-1 as a source of trouble in Cha'palaa (Floyd, this issue). In response to it, speaker A spells out the person reference that was underspecified in the trouble source turn.

Extract 7: CHSF2011_06_25S2_1350464 (Cha'palaa)

1	A	iba juntsa kajade detishaaka uwain juntsa	T-1
		i-ba juntsa ka-ja-de de-ti-shaaka uwain juntsa	
		1-COM DM.DST get-come-IMP PL-say-EV.BPG right DM.DST	
		with me they were also saying to go get that (raffle ticket)	
2	B	mun	T0
		who-Q	
		who?	
3	A	uma aikindetsui tishaaka ((head pointing))	T+1
		uma aiki-n-de-tsu-yu ti-shaaka	
		today play-N-PL-PROG-EGO say-EV.BPG	
		those they say are going to play today	

The restricted offer type of repair initiation is represented by a format known as a candidate understanding. In the following example from Argentine Sign Language (Manrique, this issue), two friends are having dinner and chatting about a new job that person A has begun recently, when person B initiates repair by offering a candidate understanding that makes relevant confirmation in the next turn. At line 3, person A confirms that the understanding was correct.

Extract 8: Two-friends-eating_244140 (Argentine Sign Language)

1	A	=PRO1 POLISH GLASS POLISH= *I {work} polishing glass*	T-1
2	B	Q_ER =CARS---H mouthing:car *{of} cars?*	T0
3	A	head-nod: YES YES *Yes, yes*	T+1

Figure 2: Stills of line 1 (L) and line 2 (R). In line 2, B initiates repair by offering a candidate understanding: '{of} cars?'. His raised eyebrows indicate a polar question.

Finally, there is the alternative question format type, in which the person initiating repair offers multiple candidate solutions to be accepted or rejected (Koshik 2005). This is an infrequent type, as with alternative questions generally, that appears to be a grammatical possibility in all of the languages. It is akin to the restricted offer type in offering a possible solution, rather than requesting one. Here is an example from Italian (Rossi, this issue). Speaker A mentions "ten pictures", upon which speaker B asks: "his or someone else's?", presenting the prior speaker with two possible understandings. In response, Speaker A disconfirms the first of these options and affirms the second by repetition.

Extract 9: Tinta_312590 (Italian)

1	A	dieci fotografie o dieci autori d-, dieci fotografie ten photographs or ten authors ten photographs *ten photographs or ten authors d-, ten photographs*	T-1
2	B	ma sue o di qualcun altro but his or of someone other *his or someone else's?*	T0
3	A	no no di qualcun altro no no of someone other *no no someone else's*	T+1

Many repair initiators target something that was said, for instance a whole turn or an underspecified person reference within the trouble source turn. The above example shows that repair initiators can also target things that were not expressed in the trouble-source turn (Schegloff, Jefferson, and Sacks 1977, 369n15). We have found that this 'external' function can be performed by all of the restricted format types.

Each of these format types —except the interjection, on which see section 4.1 below— shows considerable cross-linguistic variation when considered at the level of language-specific formats. Some languages have multiple question word-based formats for open type repair initiation (e.g., "what?" and "how?"). Some languages appear to lack a formulaic apology-based repair initiator like "sorry?" (Dingemanse, Blythe, and Dirksmeyer 2014). These and other points of variation are documented in detail in the articles in this special issue.

4 This volume and other results

Each article in this special issue describes the system for other-initiated repair in a language, based on a substantial and systematic collection of cases from informal social interaction. The project contributes to the description of the organisation of social interaction by more than doubling the number of available descriptions of other-initiated repair in languages around the world. Though designed as stand-alone descriptions, the articles share a common conceptual framework, outlined in this introduction and in the coding scheme (Dingemanse, Kendrick, and Enfield forthcoming), and together they address a wide range of topics in the domain of other-initiated repair.

Some findings relate to sequential and interactional features of other-initiated repair. Several authors, including Floyd, Levinson and Kendrick, write about *preference* in relation to the selection and frequency of different types of formats for repair initiation; related to this, we find that the full *inventory* of repair formats sheds light on the relation between different format types and the inferences they allow about kinds of trouble (see articles by Blythe, Kendrick, and Manrique). As revealed in the articles by Gísladóttir, Kendrick, and Manrique, among others, some of the ancillary *actions* carried out using repair techniques —e.g., signalling surprise and indicating upcoming disalignment— are remarkably similar across languages. We find that the formal operation of *repetition* is used in several distinct ways within repair initiations, making relevant different kinds of responses (Baranova, Dingemanse, Rossi). The *repair operations* that relate repair solutions to trouble source turns vary as a function of repair initiation formats (Baranova, Blythe, Enfield, Levinson). Related to this, we find that there is a range of linguistic items typically dispensed with in resayings (Schegloff 2004), which have in common that their anchoring function in the trouble source turn becomes irrelevant in the redone version of that turn (Dingemanse).

Other findings relate to the semiotic and linguistic resources used to build formats. With regard to *intonation*, Floyd, Gísladóttir, and Rossi document the relation of specific intonational contours to the wider system of intonational and interrogative prosody in their language. The contributions by Baranova, Enfield, and Rossi show that languages can feature multiple *question words*, or multiple variants of what is ostensibly the same question word, for open repair initiation. Language-specific *grammatical resources* shed light on the relation between grammar and discourse: the articles by Blythe, Dingemanse, Enfield, Floyd and Gísladóttir show that noun-class morphology, final particles, and case-marking offer special affordances and constraints for designing repair initiation formats. We also find special roles for *visual signals* in repair sequences, from non-manual markers and holds (see articles by Manrique and Levinson) to the combination of head movements and verbal repair initiators (Kendrick).

4.1 Further results

The papers collected here accompany a number of results that are published or in preparation for publication outside of this issue. A large quantitative study based on the results of the coding (Dingemanse et al. under review) finds evidence of a number of universal principles of repair. We find that the system of other-initiated repair, as well as the principles of how it is used, are strongly similar in all of the languages investigated. Every language provides a choice from a set of three types of repair initiators, and that the repair operation

differs as a function of the repair initiator type chosen in a way that is consistent across all of the languages. Finally, we find that people prefer to choose the repair initiator that is the most specific possible in the context, replicating a proposal made earlier for English (Schegloff, Jefferson, and Sacks 1977; Clark and Schaefer 1987); and that this preference minimises cost for addressee, and for the dyad as a social unit. All of these findings contribute to the conclusion that the ways in which people signal communicative problems and resolve them in the flow of conversation appear to be part of a universal system, grounded in human sociality.

Earlier, we reported a basic distinction between two open type repair initiators found in 21 languages: formats corresponding to the interjection 'huh?' and the question word 'what?' (Enfield et al. 2013). We found evidence in all of the languages except Yélî Dnye (see Levinson, this issue) that at least these two options are normally possible. This subsystem of open repair initiators provided a preview of the combination of unity and diversity we find throughout the linguistic organisation of social interaction. The question word format displayed considerable cross-linguistic diversity: the sounds of these words are completely different across the unrelated languages (Table 7). Also, some languages featuring both THING and MANNER words and others feature none at all for the function of open repair initiation. In contrast, the interjection was remarkably similar across languages. Table 7 presents IPA renditions of the question word and interjection formats for nine of the spoken languages included in the project (see Enfield et al. 2013, 352 for the full list of 21 languages).

The similarity of the interjection was examined in more detail in a phonetic study of 196 interjection tokens in 10 languages (Dingemanse, Torreira, and Enfield 2013). A phonetic analysis of vowel quality, intonation, and consonantal onsets revealed that the cross-linguistic variation of this interjection falls within a very narrow bandwidth. For vowels, this is the low front central corner of vowel space; for intonation, it is whatever intonation is predominantely questioning (most usually rising, but falling in Cha'palaa and Icelandic); and for consonants, it is the two glottal sounds [h] and [ʔ] as possible initials. Despite this narrow range of diversity across languages, there is evidence of calibration to local linguistic systems, suggesting this item is not only possibly universal, but it is also a true word: a conventionalised lexical item. Dingemanse et al. (2013) propose that its striking similarity may be explained by a mechanism of convergent cultural evolution, whereby a common conversational environment across languages pulls this specialised interjection into the same region of the possibility space in language after language.[7]

Table 7: Question words ("what?") and interjections ("huh?") used as open request type repair initiators in nine spoken languages.

Language	Contributor	Question word	Interjection
Cha'palaa	Floyd	ti	ʔa:
English	Kendrick	wɑt	hã:
Icelandic	Gísladóttir	kʰva:θ	ha
Italian	Rossi	kʰɔza	ɛ:
Lao	Enfield	iˡɲaŋ	hã:
Murrinh-Patha	Blythe	ṯaŋgu	a:
Russian	Baranova	ʃtɔ	a:
Siwu	Dingemanse	be:	ã:
Yélî Dnye	Levinson	(lukwe)	ɛ̃

7 As can be seen in the papers in this issue, the interjection is the most common format for open other-initiation of repair in most of the languages; it is also the one format that is most clearly dedicated to the function of initiating repair (all other formats are sourced from other linguistic subsystems). The same selective pressures may also influence the shape of the question word in its function of other-initiated repair, though to a lesser degree. For instance, Danish *hvar* [vɑ] 'what?' is sometimes nearly indistinguishable from an interjection like 'a?' or 'm?' (Jakob Steensig, p.c. Dec 2013), and Mexican-Spanish *mande?* 'what?' is apparently often reduced to *me?* (Claude Hagège, p.c. Aug 2013). These may be examples of question word formats for open repair initiation getting caught up in the 'vortex' of selective pressures responsible for the minimal questioning form of the 'huh?'-like interjection. However, these question words are, in each of the languages, also items in larger systems of question words used for many purposes beyond repair, and this may provide competing motivations.

In an exploration of the pragmatic typology of formats for other-initiation of repair, we found that the formats within a language form a system of options offering not just ways to fix trouble, but also to address questions of responsibility and to negotiate the distribution of knowledge across participants (Dingemanse, Blythe, and Dirksmeyer 2014). Whereas many previous approaches assumed one overarching organising principle, ordering repair initiators from 'weak' to 'strong' according to the grasp they display of the trouble source (Schegloff, Jefferson, and Sacks 1977, 369; Sidnell 2010, 118), the variety of formats within and across languages, and the availability of multiple options with the same strength, suggest that there are multiple competing selection principles. By selecting one format over another, participants may be seen to privilege one concern (e.g., managing responsibility) over possible others.

We have also studied visual bodily behavior in connection with the organisation of repair sequences. One finding relates to 'holds', when movements of the eyes, head, hands or body are temporarily and meaningfully held static at specific moments in the repair sequence (Floyd et al. in press). If the party who initiates repair accompanies their turn with a hold, this position will not be disengaged until the problem is resolved and the sequence is closed. Hold disengagements thus help accomplish sequence closure, a function they are especially fit for because they do not interfere as strongly with the spoken or signed material that may be going on while the trouble is being resolved. Floyd and colleagues (in press) point out that this finding is likely not limited to sequences of other-initiated repair, and may generalise to many other contexts where conditional relevance is at play.

A study of the timing of other-initiations of repair in English by Kendrick (under review) pursues the observation by Schegloff et al. (1977) that speakers tend to withhold other-initiations of repair, resulting in an expansion of the transition spaces before them. The results of a quantitative analysis show that the most frequent other-initiations of repair occur after gaps of approximately 800 ms, significantly longer than the 300 ms average for responses to polar questions in the same data. In addition, a qualitative analysis reveals that speakers use these gaps not only to provide opportunities for self-initiated repair, as Schegloff et al. argued, but also to search for 'late recognition' of the trouble-source turn and to produce visual signals, such as facial gestures and other body behaviors.

5 Towards a typology of conversational structure

The accounts of other-initiated repair in this special issue are of value as descriptions in their own right, but there is a particular advantage to considering them in the context of the comparative project. Together, they display the combination of deep cross-linguistic commonality and significant linguistic differences that is characteristic of human social interaction. As Moerman remarked, "languages with quite different resources [are] being mobilized to do the same conversational jobs" (Moerman 1977, 875; cf. Schegloff 2006).

Systematic similarities and differences point to the possibility of a typology. In linguistics, typology has tended to focus on structure at clause level and below, from morphosyntax to lexicon and phonology. An important methodological contribution of our project deals with the question of how to extend linguistic typology to the domain of conversational structure. Many linguists have been trained to believe that conversation is degenerate, ridden with performance errors, and devoid of clear structure. Contrary to this, scholars analysing the structure of English conversations have found systematic regularities governed by social norms (Fries 1952; Sacks 1992; Schegloff, Jefferson, and Sacks 1977; Enfield and Sidnell 2014). To chart this kind of structure in other languages and to find out how general it is, linguists are turning to the comparative study of conversation, contributing to an emerging field of pragmatic typology: the comparative study of systems of language use and the principles that shape them (Sidnell 2007; 2009b; Dingemanse and Floyd 2014). Two key challenges in this emerging field are (1) the availability of data and (2) the achievement of comparatibility.

Typologies are built on the basis of reliable, representative datasets. For many of its questions, linguistic typology has been able to rely on published grammars and grammar sketches to extract data about a range of structural facts, from phonotactics to word order and clause structure (Bybee, Perkins, and Pagliuca

1994; Croft 2003; Haspelmath et al. 2008). Such descriptions are available in libraries and databases for a large number of languages, enabling judicious sampling of the world's linguistic diversity to control for genealogical relations and areal effects (Hammarström et al. 2014; Bickel 2008). This descriptive data can be relatively easily supplemented with data collected using questionnaires and stimulus-based elicitation (Lüpke 2009; Majid 2012). Things are different for the study of conversation. Few corpora of naturally occurring conversation exist, and they are mostly of major, written languages; additionally, elicitation and introspection in matters of language use is fraught with problems (Nisbett and Wilson 1977; Silverstein 1981). Studying conversational structure in a diverse sample of languages therefore often involves collecting new primary data of a type that field linguists have only recently begun familiarising themselves with: naturally occurring informal social interaction (Enfield et al. 2011; Enfield 2013a). This is the kind of data that underlies the current project.

Having data is the first step; achieving comparability is the next. To do systematic comparison, we need to compare like with like. There are established methods for this across a wide range of subfields in linguistic typology (Lehmann 1978; Dahl 1985; Pederson et al. 1998; Hyman 2009; Evans 2011, among many others), but how to do this in conversation has proven to be less straightforward. Social scientists and field linguists strive to achieve comparability by means of laboratory experiments and controlled elicitation: methods that provide the analyst with experimental control over what is being investigated. A similar kind of control is possible in conversation with the *natural control method* (Dingemanse and Floyd 2014). The key to this method is to find sequential contexts that remain stable across variation in topics, participants, languages and societies (Schegloff 2007; Stivers et al. 2009; Enfield, Stivers, and Levinson 2010; Kendrick et al. 2014). In the current project, we have found that the three-part structure of other-initiated repair (with trouble source, repair initiation and repair solution, the latter two together forming the repair sequence proper) serves as a system in which we can keep some parts stable while examining how other parts vary. Because we study formats for other-initiation of repair only within the context of repair sequences, we can be confident that we are looking at functionally comparable items.

Corpora of social interaction, coupled with the natural control method, provide us with an empirical base for pragmatic typology: stable characterisations of systems of language use that are ripe for cross-linguistic comparison. Given this empirical base, there are two questions we can ask about systems of language use: the structure question and the diversity question.

For any system of language use,
(1) what is its structural organisation?
(2) how is its realisation influenced by diversity in linguistic resources?

Both of these questions require cross-linguistic comparison, but in different ways. For the structure question, comparison is necessary to establish whether we are dealing with a language-specific system or with something that transcends languages. Even domains like spatial cognition and colour perception, often thought to be relatively invariant, can vary across languages and cultures (Henrich, Heine, and Norenzayan 2010; Majid and Levinson 2010). We need evidence from multiple languages to assess how general proposed universal features of social interaction really are.

Our work contributes to this by showing that other-initiated repair is found in roughly the same form across a diverse set of languages. Across languages, inventories of formats for repair initiation feature the three basic types (open request, restricted request and restricted offer repair initiators, Figure 1); and across languages, these three types are implemented using comparable linguistic resources (interjections, content questions, polar questions, and repetition). In some parts of the system the similarities run deep, with the very sound of one of the basic formats, the interjection for open repair initiation, being strongly similar across unrelated languages (Dingemanse, Torreira, and Enfield 2013). Another similarity concerns the kinds of actions to which other-initiation of repair can be put (Selting 1996; Schegloff 1997a). Across languages, we find that speakers can use the techniques of other-initiated repair to signal surprise or disbelief or to prefigure disagreements or disaligning actions. That the neighbourhood of other-initiated repair is so similar across

unrelated languages testifies to its robust universal sequential structure, which offers the same interactional affordances everywhere. Again at the level of form, we find that across languages, marked prosody works in similar ways, namely as a cue that can distinguish action types (as Selting (1996) showed for German). As we see in this issue, marked prosody can signal surprise or disbelief in languages as varied as Icelandic (Gísladóttir, this issue), Siwu (Dingemanse, this issue) and Russian (Baranova, this issue).

The diversity question asks how the implementation of a system varies as a function of diversity in local linguistic resources. Here, comparison is necessary to understand to what extent interactional organisations may be calibrated to the linguistic resources they are made of. In other-initiated repair, this includes language-specific resources such as intonation contours, interjections, question word systems and other features of morphosyntax. Our work shows that despite broad overall structural similarities, there are cross-linguistic differences in how formats are realised, and in some cases in whether they are realised at all. Take the open request type interjection again. Even this form, despite strong cross-linguistic similarities, shows language-specific realisations: its intonation is adjusted to local systems of questioning prosody (falling in Icelandic, rising in Lao), and its vowel is calibrated to local vowel systems ([a] in Cha'palaa, [ɛ] in standard Italian). Other linguistic resources used in other-initiated repair provide further sources of diversity, alluded to above and described in detail in the articles in this issue. The resources offered by different languages may offer different action affordances and therefore subtle collateral effects (Sidnell and Enfield 2012).

One goal of linguistic typology is to define different types of systems or languages according to meaningful parameters of diversity. Our work is a stepping stone towards this goal, sketching the contours of a possibly universal system and identifying some of the most salient parameters and properties of the diversity. A key move is to realise that formats are ultimately language-specific, and that comparison is best done at the level of constitutive properties: functional and sequential aspects of conversational structure that make it possible to reveal commonality and difference. Despite the progress documented in this special issue, it may be too early to propose any further classication because of the challenges mentioned above. To capture more subtle dimensions of diversity, and to understand the effects of local linguistic resources on when, how and why repair is initiated and solved, we need more detailed descriptions of other-initiated repair across a wider range of languages.

In future linguistic descriptions, it may be as normal to describe the system of other-initiated repair as it is to describe the structure of the noun phrase or the syllable. Large quantitative surveys of conversational structure may be easy to carry out and may draw from dozens if not hundreds of languages. But for now and some time to come, the results of pragmatic typology will be based on hard-won datasets, carefully crafted coding schemes, and inductively derived comparative concepts.

6 Conclusions

This special issue sheds new light on the organisation of other-initiated repair within and across languages. It illustrates how qualitative analyses of individual cases and their embedding in local linguistic systems can be combined with a quantitative and comparative perspective, bringing into view the organisational details of a possibly universal system for other-initiated repair. Both sides of the coin are important. Without careful qualitative analysis we risk losing the texture of interaction as it unfolds. But without a quantitative-comparative approach it is hard to tell whether we are documenting idiosyncracies or common aspects of the organisation of social interaction in humans.

Apart from offering a systematic set of descriptive studies, this issue also demonstrates a methodology for the comparative-typological study of social interaction, known by such names as pragmatic typology, conversational typology, or cross-cultural comparative interaction studies. Typology has long been a sentence-level enterprise, but recent work has started to acknowledge the importance of a comparative understanding of language as a cooperative behaviour, and the feasibility of systematic comparative approaches to pragmatics and systems of language use. Work in this emerging field is starting to reveal not just pockets of potential diversity, but also possibly universal patterns that shed light on the interactional foundations of language.

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