

ACTION OR REACTION, LEARNING OR DISPLAY: INTERACTIONAL DEVELOPMENT AND USAGE-BASED DATA

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Abstract: This paper investigates how instances of language use can serve as analytic anchors for insight into interactional development over time. I present a usage-based, longitudinal study of multi-turn sequences underlying telephone openings in order to specify if and to whom *language learning* may be relevantly ascribed. Two successive analyses of the same data segment are conducted, once in terms of distributed cognition and a second time in terms of individual cognition. Both analyses produce different results. Ultimately, this paper specifies opportunities and constraints in usage-based studies focusing on interactional development over time in second language learners. The results call for more cross-disciplinary research that encompasses both the social and the cognitive.

Keywords: Conversation Analysis; language learning; distributed cognition; individual cognition; usage-based data

Özet: Bu çalışma dil kullanımı örneklerinin zamanla olan etkileşimsel gelişimin içyüzünü anlamak için analitik bağlantılar olarak nasıl işe yarayacağını incelemektedir. Dil öğreniminin uygun bir şekilde atfedilip edilemeyeceğini ve kime edilebileceğini belirlemek için telefon görüşmelerinin başlangıçlarının temelinde olan çok dönüşlü dizilişlerin kullanım temelli, uzun vadeli bir çalışmasını sunmaktayım. Birincisi dağıtık biliş açısından ikincisi de bireysel biliş açısından olmak üzere aynı veri kesitinin peş peşe iki çözümlemesi yapılmıştır. Her iki çözümleme de farklı sonuçlar ortaya çıkarmıştır. Sonuç olarak, bu çalışma ikinci dil öğrencilerindeki zamanla olan etkileşimsel gelişime odaklanarak kullanım temelli çalışmaların sağladığı fırsatları ve onların sınırlılıklarını belirtmektedir. Sonuçlar sosyal ve bilişsel unsurları kaynaştıran daha fazla disiplinlerarası araştırmayı teşvik etmektedir.

Anahtar sözcükler: Konuşma Çözümlemesi; dil öğrenimi; dağıtık biliş; bireysel biliş; kullanım temelli veri

Introduction

Situating this study in the overall disciplinary landscape would have been straightforward some 10-15 years ago. Since this paper investigates what telephone opening sequences produced by novice second language learners can illuminate about how to study second language learners' interactional development, this would appear to be a study in second language pragmatics. Second language pragmatics can historically be viewed as a subfield of second language acquisition (SLA) pursuing issues in pragmatic development, both in and beyond instructed language learning settings (Kasper & Rose, 2003; Rose, 2005; Rose & Kasper, 2001).

However, some areas in pragmatics and in SLA have undergone significant shifts since then. Most notably, we have seen increasing efforts of applied linguists to incorporate instances of language use into the study of second language learning and teaching. Particularly in the wake of Firth and Wagner (1997), data sets featuring real-time language use and interaction by second language learners were increasingly brought to the fore, to a large extent, though not exclusively, under the epistemological and methodological auspices of conversation analysis (Liddicoat,

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2007; Markee, 2000; Richards & Seedhouse, 2005; Schegloff et al., 2002; Seedhouse, 2004; Sidnell & Stivers, 2012; Wong & Olsher, 2000).

The focus and appeal of such studies has been to reinvestigate if and how established analytic categories in SLA may be verified outside of experimental research frameworks (Gardner & Wagner, 2004) and subsequently engendered a reconsideration of some of the most fundamental notions in SLA. At present, nothing short of the notion of language learning is under renewed scrutiny as central concepts in the field are being reframed in response to usage-based inquiry. We are currently developing an increasingly nuanced appreciation of language (Cook, 2010) and an increasingly diverse understanding of what *learning* may entail (Seedhouse, Walsh & Jenks, 2010). The resultant theoretical and methodological challenges for applied linguistics include, for instance, confronting the existence of seemingly disparate views of cognition as an isolated and as a socially distributed phenomenon (Mori & Markee, 2009; Kasper, 2009). Furthermore, the implications of the attendant theoretical pluralism are being reassessed (Ellis, 2010), as, for example, notions of learning in terms of having as well as in terms of doing concurrently coexist on unresolved theoretical territory (Larsen-Freeman, 2010; Palotti & Wagner, 2011). In part in response to these challenges, Eskildsen (2011, p. 328), among others, suggests a usage-based research perspective (UBL) that views the social and the neuro-cognitive as mutually constitutive rather than as disparate. Overall, research in second language studies, whether concerned with phonological, morpho-syntactic, or pragmatic issues, is called upon to develop workable theoretical frameworks capable of accommodating the complex phenomenon we call *language* learning as a conflation of various emergent, dynamic, and mutually constitutive processes (Kramsch, 2002; Larsen-Freeman & Cameron, 2008; van Lier, 2004).

Hence, while historically anchored in second language pragmatics, this study must frame its conceptual orientation in light of these developments which introduced a number of conceptual changes. I present a usage-driven study of dyadic second language learner talk, seeking to expand descriptive knowledge about second language learners' *interactional competencies* (Hall, Hellerman & Pekarek-Doehler, 2011) and their emergence over time. A central methodological challenge in this endeavor continues to be the separating of neuro-cognitive issues on the one hand and those sensitive to interactional processes on the other hand when relying largely on usage-based data. Hall and Pekarek-Doehler (2011, p. 7) specify: "How can we differentiate, in the observable change between two moments in time, what is due to development over time, and what is due to a change in local context?" highlighting the importance of deciding between equally available though notably different explanatory avenues that present themselves whenever a given instance of language usage in a longitudinal research design awaits systematic explication.

A second challenge is delineating *product* from *process* in usage-based studies that are striving to provide insight into interactional phenomena from a developmental perspective. Connecting given accounts of language use across time requires the analyst to specify whether a given account of language use is an instance of usage that may further the process of learning, i.e. whether a given instance of observable language usage exemplifies a process-in-action, as an item visible along a trajectory of many items across time and contexts that, combined, form a process in the first place. On the other hand, it is possible for the analyst to view an instance of observable language usage as an isolated *result* of a previously initiated and largely complete process of learning. That is, one may view an instance of language usage as a *product* of an

already finished process in and of itself.¹ Each view, however, entails different argumentative avenues; either targeting recorded instances of usage as *comprising* the arc of development, or targeting developments that happen in the time between recorded instances of language usage.

This study addresses both. Based on recorded instances of language use, I investigate the emergence of a particular *interactional competency*, namely, second language learners' ability to engage in typed turns and sequences of typed turns specific to the target language at two different points in time. The local, interactional context for these turns and sequences of turns is provided by comparing second language learners' collaborative production of the same verbal activity, namely telephone opening sequences. The individual neuro-cognitive dimension for this study lies in a longitudinal research design as I compare usage-based data collected both before and after pedagogical intervention in an instructed language learning setting, i.e. at two different points in time across which one may potentially establish change.

From the outset, I apply a view of language learning in terms of having, that is, I view the observable use of a given linguistic item (here: typed turns and sequences thereof in the context of telephone openings) primarily as the *product* of a previously initiated neuro-cognitive process of development (i.e. learning) in our respective interactants. Hence, I ask whether second language learners' ability to produce what CA calls relevant next turns at specific positions in the back and forth of interaction can be had - as a discernable, addable quantity that gradually takes hold in the overall repertoire of linguistic resources available to a given second language learner. As I will argue and here suggest up front, there are inherent limitations to such an analysis if confined exclusively to a usage-based data set. In the following, my data analysis suggests that establishing causality for the occurrence of observable instances of language use ("turn X occurred in position Y of interaction Z and was produced by speaker A due to a previously initiated process of learning") often remains an ambiguous effort if solely undertaken on the grounds of usage-based data. However, this insight does not invalidate or render futile any usagebased analysis, especially as for some of the turns at talk showcased here, the present usage-based data set is able to provide strong evidence for language learning over time. As has been argued elsewhere (Huth, 2010a), this observation simply calls for research designs that combine usagebased studies with other methodological frameworks.

I proceed as follows. First, I review the structure of the learning target for this study - telephone opening sequences and their sequential organization; I examine the status quo of empirical insight concerning the teaching and learning of typed turns and sequences of turns in second language contexts; and I discuss the significance of this insight for the present analysis. I then describe the data collection procedure for my data set and analyze two data segments that trace beginning learners' collaborative enactment of telephone opening sequences before and after learning about them. I proceed to analyze these segments twice; once in terms of distributed cognition, and then again in terms of individual cognition. I conclude with a discussion of what we can see in the data, what eludes the analyst, and the implications thereof for future inquiry.

Typed turns as learning targets

This section presents empirical research on the learning target for this study (telephone opening sequences) and proceeds to review the existing body of research on the teaching and learning of conversational sequences in instructed language learning settings. The learning target of this study is the sequence structure underlying telephone openings in American English (AE) and

German. Telephone opening sequences as a typed verbal activity have been the object of empirical, usage-based study in various languages and therefore comprise a well-understood interactional phenomenon (Godard, 1977; Hopper, 1992; Houtkoop-Streenstra, 1991; Liefländer-Koistinen & Neuendorf, 1991; Lindström, 1990; Pavlidou, 1994; Schegloff, 1979; Schegloff, 1986; Schegloff & Sacks, 1973; Sifianou, 1989; Taleghani-Nikazm, 2002). The relevant findings for a cross-linguistic analysis between AE and German can be found in Pavlidou (1994), Schegloff (1979), Schegloff and Sacks (1973), and Taleghani-Nikazm (2002).

Telephone openings can be described in terms of an ordered set of four discernable action types, namely a) the summons-answer sequence, b) the identification/recognition sequence, c) the production and exchange of greetings tokens, and d) a *how are you* sequence. In general, these routine actions precede first topic, that is, they are collaboratively accomplished by speakers *before* the first actual topic of the telephone conversation is officially initiated. Consider the following telephone opening adopted from Levinson (1983, p. 312):

01 (ring) 02 A: hello

03 B: hello rob. this is laurie.

04 how's everything

05 A: pretty good. 06 how 'bout you.

07 B: jus' fine. the reason I called was . . .

Lines 01/02 show the summons-answer sequence as the phone rings (summons) and Rob produces hello in response (answer). Mutual identification/recognition is achieved in line 03 as Laurie does two things in quick succession, namely she displays her positive identification of Rob (hello rob., line 03) based on his previously produced voice sample (hello, line 02) and proceeds to self-identify by offering her name (this is laurie, line 03). Note that the summons answer-sequence and the mutual identification/recognition sequence are in fact accomplished through the use of greeting tokens (hello, hello rob, lines 02, 03). Therefore, several actions overlap as the exchange of greeting tokens is interwoven with answering the phone in response to the summons and similarly implicated in the achievement of mutual identification and recognition. Lines 04-07 show a how are you sequence consisting of two successive questionanswer sequences (how's everything – pretty good, how 'bout you – jus' fine). This how are you sequence is therefore reciprocal and constitutes a quick, seamless, mechanistic routine (rather than an inquiry into the larger affairs of one's life possibly to be expanded). The first actual conversation topic is initiated only after these four relevant routine actions have been collaboratively accomplished (the reason I called was..., line 07). While the specifics of telephone opening sequences may vary from instance to instance, the above organization has been shown to provide the conceptual blueprint to which speakers generally orient.

Usage-based research on German telephone openings (see above) suggests that this verbal activity differs in AE and in German in various respects. While AE speakers routinely prefer to achieve mutual recognition/identification by voice sample, German speakers generally prefer to do so by self-identifying by name. Often, recipients use their full names produced with a rising intonation, prompting the caller to self-identify as well. While in AE openings, *how are you* sequences frequently occur, are generally reciprocated, and precede the first topic, German

telephone data suggest that German speakers rarely engage in how are you sequences. However, in the event they do, the sequence is generally not reciprocated (i.e in such cases there is generally only one question-answer sequence instead of two) and may often serve as first topic elicitor rather than preceding the first topic. In other words, if it is produced, German speakers may take an initial how are you not as a mechanistic routine to be promptly reciprocated and closed sequentially in quick succession, but rather as the initiation of the first topic of the conversation which is to be elaborated upon. Table 1 summarizes differences in the sequential organization between AE and German based on usage-based research.

Table 1
AE and German telephone opening sequences

| Action types/sequences | American English | German |
|----------------------------|---|---|
| greeting tokens | Yes | yes |
| mutual | voice sample | recipient often self-identifies by |
| recognition/identification | | name, often with rising |
| | | intonation |
| how are you sequence | frequent, generally reciprocal, mechanistic routine | rarely deployed, <i>if</i> used often unilateral, sometimes expanded into first topic |
| first topic | initiated separately, following | sometimes implicated in how |
| | the above | are you sequence |

We see that speakers' interactional competencies include one particular set of knowledge concerning the management of "what comes next" as speakers take turns in the back and forth of talk. Turns are not produced randomly, but are often typed, that is, some turns, and the actions accomplished through them, are relevantly connected to others. For example, questions are answered, invitations accepted or declined, and a *how are you* sequence may be routinely reciprocated, or not. Part of the interactional competency of a native speaker of a given language is thus the ability to anticipate, interpret, and produce what is called "relevant next turns" at precise points in the back and forth of talk and as connected to the particular, local context of specific overarching types of actions.

Prior research suggests that typed turns, paired action, and the sequence organization underlying particular verbal activities 1) is subject to variation across languages; 2) is implicated in pragmatic transfer by second language learners, 3) is therefore a common culprit in cross-cultural miscommunication, and 4) has been shown to be teachable and learnable in instructed language learning settings even by novice second language learners (Barraja-Rohan, 1997; Golato, 2002; Huth, 2006, 2007, 2010b; Huth & Taleghani-Nikazm, 2006; Kasper, 1992; Taleghani-Nikazm, 2002; Taleghani-Nikazm & Huth, 2010). However, little is known there about how the *interactional competency* (Hall, Hellerman & Pekarek-Doehler, 2011) of anticipating, interpreting and producing relevant next turns in defined interactional contexts develops over time and how it is implicated in the development of second language learners' overall linguistic and interactional resources. Hence, this learning target invites usage-based inquiry in a developmental context. In the following section, I seek to provide a data-driven examination that investigates what kind of analytic opportunities and methodological limits such an undertaking entails.

Data collection procedures

In this section, I outline the data collection procedures for my data corpus, address the implications for analysis, and then proceed to analyze two data segments which feature the same second language learners who were recorded at two different points in time. The goal for the analysis is to focus on the analytic insight for which the data allow and to critically inquire into what must elude the analyst in light of a) both the differences and similarities of telephone openings in the specific languages involved, b) the potential for pragmatic transfer, c) the analytic complications that arise from the collaborative contingencies surrounding the talk, and d) the institutional context surrounding the talk and second language learners' potential orientation to it. In conclusion, the convergence of these aspects are brought to bear on the question of whether a usage-based longitudinal study such as this may provide access to viable claims on the development of interactional competencies over time.

The data for this study were collected as follows. A combination of the insights on AE and German telephone openings above and materials adapted from Huth and Taleghani-Nikazm's (2006) teaching unit on German telephone openings was used in a second semester, beginning German language and culture class at a Midwestern American university. Several weeks prior to this teaching unit, and several weeks following it. American learners of German engaged in an out-of-class assignment on the telephone, which was audio-recorded. Students were given a conversation task that may also be classified as open role-play (Bardovi-Harlig & Hartford, 2005; Golato, 2003; Kasper & Dahl, 1991; Kasper & Rose, 2002), designed to elicit the learning target, i.e. telephone opening sequences. However, participants were not given particular social roles, but were instead instructed to be themselves in the context of a class-related, though ungraded, assignment. Participants were given a fictional contingency prompting the call. The caller was supposed to place the call because, as was purported, s/he had lost their German textbook and was thus calling to request using the recipient's textbook in the interim. This contingency was only known to the caller, whereas the recipient was merely instructed to receive the call and react as s/he saw fit.² Since the data for this study are clearly elicited, they cannot be classified as documenting naturally occurring interaction. However, Huth (2010a) provides a detailed methodological study demonstrating that such elicited interaction provides a rich and ultimately viable locus for usage-based inquiry.

Since the beginning of any telephone call necessarily requires participants to engage in a telephone opening sequence, the occurrence of opening sequences was guaranteed in the data. The specific focus of the following analysis is how participants handled the summons-answer sequence, how mutual ID/recognition was achieved, whether or not *how are you* sequences were initiated and responded to, and when and how first topic would eventually be initiated. To reiterate, telephone calls were recorded twice, several weeks prior to and after the teaching unit. Since we have a pre-instruction data set and a post-instruction data set, we can analyze both sets with an eye toward potential transfer of L1 structures and with an eye towards the potential emergence of L2 structures over time, or possibly a combination of both. Ultimately, we have a data set that is based on language usage, features a stable interactional context (telephone openings), and includes the required component for a longitudinal study, namely instances of language use recorded at two different points in time.

Pre-instruction data: pragmatic transfer

As noted above, second language learners tend to transfer their linguistic and interactional competencies when using the L2 to fulfill their social and interactional needs in talk. Not surprisingly, the entire pre-instruction data set showed clear results, namely, pragmatic transfer for all participants. In other words, *all* participants opened up their respective telephone conversations by using German words and sentence structure, but by applying the sequential organization of AE telephone opening routines (see Table 1). Consider the following data segment:

(1) Pre-instruction, pragmatic transfer [Todd & Karen, first]

01 ring

02 todd: hello?

hello?

03 kar: hello

hello

04 todd: guten tag

good day

05 kar: .hhh uh guten tag. wie geht's?

.hhh uh good day. how are you?

06 todd: uh mir geht's gut und du?

uh i am fine and you?

07 kar: .hhh uh nicht besonders gut

.hhh uh not particularly well

08 todd: nein?

no?

09 kar: uhm:: tsk machst du am wochenende

uh:: tsk you do on the weekend

After the phone rings (line 01), Todd uses a greeting token and thus provide a voice sample (hello, line 02). This is met with the same action by Karen (hello, line 03), whereupon Todd provides another greeting (guten tag, line 04) which is reciprocated by Karen (.hhh uh guten tag., line 05). Karen proceeds to initiate a *how are you* sequence (wie geht's?, line 05) which is met with a relevant response by Todd (uh mir geht's gut, line 06). Todd proceeds to reciprocate the how are you sequence (und du?, line 06) which Karen responds to with a relevant response (.hhh uh nicht besonders gut, line 07). Here, in fact, Karen potentially treats the sequence not necessarily as closed, but as a potential topic, a move recognizable for Todd who orients to it in his next turn (nein?, line 08), though curiously there is no further uptake from Karen who, in her next turn, initiates yet a different topic (uhm:: task machts du am wochenende, line 09).

We can clearly see a variety of characteristic that allows us to establish that both participants are applying AE sequence structures while speaking German in this example: mutual identification/recognition is achieved by producing a voice sample via greeting tokens, initially in fact in AE (lines 02, 03) and then again, repeated, in German (lines 04,05). We note the presence of a *how are you* sequence which is reciprocated (lines 05-07), followed by the initiation the first topic (line 09). The sequential organization of this example clearly reflects AE sequence structure, i.e. pragmatic transfer on the part of participants.

Unique features in this exchange which we would probably not find in naturally occurring conversation include the circumstance that the summons-answer sequence and the mutual identification/recognition are achieved through participants' native language, followed by a code-switch which repeats the actions just accomplished in the L2 (mutual ID/recognition). Secondly, Karen is providing a second pair part at the end of the *how are you* sequence which potentially treats the sequence not as closed, but rather as a possible first topic, a circumstance to which Todd immediately orients. However, Karen then changes course in her next turn, thus closing the *how are you* sequence. The first clearly orients to participants' mandate to choose one of two available languages in their interaction. The second is not uncommon in AE telephone openings and is possible way to utilize *how are you* sequences. We note while usually, *how are you* sequences in AE are reciprocated and consist of a routine that is quickly closed after the swift exchange of two adjacency pairs, this does not preclude interactants to expand upon it, thus redefining a routine into the initiation of first topic.

Concerning the entirety of the data set, we note that *all* participants in the pre-instruction data transfer AE sequence structures as they open up the telephone conversation, i.e. all participants oriented to the sequential organization of their L1 in the context of opening up the telephone conversation while using the L2 on the morpho-syntactic level to talk to one another. We may conclude that this usage-based data set is able to trace second language learners' interactional competencies on the sequential level to the extent that L1 transfer can be established in the pre-instruction data beyond a doubt.

Post-instruction data

Let us turn towards the post-instruction data. To reiterate, several weeks after the first round of recordings, German telephone openings (see table 1 above) were taught and practiced in a two-day teaching unit. Students reflected about, analyzed, practiced both in writing and in speaking, and discussed the cultural import of, German telephone opening sequence structures. Several weeks later, the post-instruction data collection took place.

What can we expect of the post-instruction data set? If the goal of this study is to trace change over time, i.e. language development (or *learning*) as evidenced by participants' different kind of language use at two different points in time, then we may expect that in the post-instruction data set, participants engage in German telephone opening sequence structures rather than engage in pragmatic transfer. Since the structures in question are well-documented for each language, an analysis should be able to separate participants' orientation to AE sequence structures (i.e. instances of pragmatic transfer) on the one hand, and participants' orientation towards German sequence structures (i.e. instances of change over time = learning) on the other hand.

Consider the following post-instruction data segment, which in fact does display a clear orientation of participants towards sequence structures underlying telephone openings in German. Since these are the very same participants featured in segment (1) above, we can clearly establish "difference" in their verbal behavior at two different points in time based on their use of sequence structures to begin a telephone conversation:

(2) Post-instruction, German structures [Karen & Todd, second]

01 ring

02 kar: karen graham?

karen graham?

03 todd: hallo hier ist todd

hello this is todd

04 kar: oh hallo todd wie geht's

oh hello todd how are you

05 todd: oh mir geht's gut? aehm was machst du am samstag

oh I am fine? uhm what are you doing on saturday

06 kar: am samstag hm:.hh ich weiss nicht

on saturday hm:.hh i don't know

As we can see, in response to the summons (ring, line 01), Karen self-identifies with her full name, produced with a rising intonation (karen graham?, line 02). Todd responds with a greeting token (hallo, line 03) and self-identifies by name as well (hier ist todd, line 03). Karen produces greeting tokens (oh hallo, line 04), proceeds to display here positive recognition/identification of Todd (hallo todd, line 04), and ends her turn by initiating a *how are you* sequence (wie geht's, line 04). Todd provides the relevant second pair part to the *how are you* sequence (oh mir geht's gut?, line 05), however he does not reciprocate the how are you, i.e. he does not initiate a second how are you himself. Rather, he launches the first topic directly on the heels of what, as a result, now comprises a closed and thus complete though clearly unilateral *how are you* sequence (aehm was machst du am samstag, line 05). Karen duly orients in her next turn to this first topic (am samstag hm: .hh ich weiss nicht, line 6).

First, we can clearly establish that this data segment does not show L1 transfer. In fact, participants are organizing their talk at the beginning of the telephone call according to the German sequence structures previously taught in class (see table 1 above). We can establish beyond a doubt the presence of 1) self-identification by full name with rising intonation by the recipient, met with self-identification by name by the caller, 2) an exchange of greetings tokens, 3) a unilaterial *how are you* sequence, followed by first topic. We note that none of the participants displayed any of these features in the recorded pre-instruction data.

Hence, for these two second language learners, we may observe 1) difference in language behavior at two different points in time based on usage-based evidence. We may relevantly view this as 2) change in language behavior over time in two second language learners, relevantly effectuated by pedagogical intervention in class. In a third step, we conclude that both available analytic anchors, i.e. one instance of language use pre-instruction and one instance of language use post-instruction, if compared to one another, point towards 3) development over time, given that the observable instances of language use are produced by the same speakers, at two different points in time, and in the same definable local, interactional context.

If we see both instances of usage as cognitive conditions at two given points in time, and if we furthermore view language learning in terms of *having*, then we would view this post-instruction data segment as the product of a previously initiated developmental process that may as yet not be fully complete if capable of producing a discernable, unique result; it comprises a *product* reflecting a different developmental status quo from that produced at a different point in time in

the past, namely, sequence structures characteristic of typical German usage, and not of AE usage. Hence, we would conclude that we are confronted with a manifest example of interactional development based on our conception of change over time, established with a usage-based data set. Indeed, for these two speakers, and in the context of this particular usage-based data set, we may very well be tempted to conclude that this is a manifest instance of *language learning* in terms of individual neuro-cognitive development concerning a particular interactional competency (the sequence structure underlying telephone openings) for two specific second language learners with usage-based data.

It would, then, also be tempting to assert that, in this data example, both the social and the neuro-cognitive are *equally* visible. This assertion would allow us to ascribe change over time, hence neuro-cognitive development, for each individual speaker involved in this interactional exchange based on their demonstrable collaborative achievement. Since two second language learners are jointly orienting to a kind of sequential organization in their talk not found in their L1, we infer that that which is visible in segment (2) in terms of distributed cognition, i.e. the turn-by-turn collaborative emergence of sequence structures clearly attributable to an L2, must be the result of two individual speakers' individual neuro-cognitive development. Knowledge of, and the ability to do interactionally, German telephone openings would, then, be viewed as a contingency for any L2 typed turn to be produced.

In summary of this initial analysis on the level of distributed cognition, we appear to be confronted with an instance of change over time, and are thus tempted to infer, from a preliminary social-interactionist observation, that the collaborative emergence of a discernable structure in talk-in-interaction must necessarily be attended by individual, neuro-cognitive change over time. This is all the more enticing given that we are observing interactional competencies that clearly cannot have emerged by mere chance, but for which we have clear evidence to have emerged because of prior pedagogical intervention. Hence, we would be inclined to argue that, without a previously initiated and largely complete neuro-cognitive *process* of learning in each individual speaker, there can be no collaborative *product* of such learning in a given local interactional context (such as telephone openings) as is visible in data segment (2) above. In short, we would argue that this data segment could not have been produced had it not been for learning. Therefore, we would posit that individual neuro-cognitive development for both speakers is in fact a prerequisite for interactional structures to emerge.

Coconstruction vs. individual cognition

However, while this first line of argument may appear compelling, it is also partially misleading. When discussing interactional phenomena such as typed turns and sequences of turns that, in concert, organize overarching verbal activities such as compliments, requests, or telephone openings, it is important to realize that we are in fact addressing an interactional phenomenon that is inherently emergent, because it is contingent on the mechanisms underlying coconstruction by two or more speakers. Specifically typed turns (such as the first turn of a reciprocal *how are you* sequence) are initiated by first speakers and as such reflect the initiation of a given action by way of a given turn. The social action of initiating, say, a *how are you* sequence, would reflect the initiator's individual competencies of doing so and thus point towards this speaker's individual cognitive status quo. However, the successful coconstrution of an entire sequence of typed turns requires at least two turns produced by two interactants as the result of their joint orientation towards what they may or may not recognize as a "common set of

procedures" (Garfinkel, 1969). Therefore, while first speakers may initiate a particular action that may eventually lead to a given sequence of actions, first speaker has little control at that point in time over how second speaker responds. With every conversational move, with every turn issued in interaction, a speaker does tacit inferential work as s/he anticipates, interprets, and produces what s/he understands to be relevant next turns. This process may then lead to mutual understanding, or it may not (Koschman, 2011). Heritage (1984, p. 242) describes this a function of the 'doubly' contextual character of the potentially relevant actions each turn-at-talk entails: "The context-renewing character of conversational actions is directly related to the fact that they are context-shaped. Since every 'current' action will itself form the immediate context for some 'next' action in a sequence, it will inevitably contribute to the framework in terms of which the next action will be understood."

Hence, when considering the analysis of entire sequences of typed turns, the production of relevant next turns becomes difficult as we analyze reactions (i.e second actions) produced in light of previously initiated actions (i.e. first actions). Such second actions may thus be clearly engendered by the immediately preceding configuration of actions rather than of individual neuro-cognitive processes such as learning. Hence, in real-time talk, we are confronting the difficulty of deciding whether a second turn, however typed, is simply a function of a first turn rather than reflecting what a second speaker knows about interaction or has possibly learned about interaction in their first or their second language. Put yet differently, we are facing the difficulty of deciding whether a second turn may be a function not of second speakers individual competencies reflecting a particular individual, neuro-cognitive status quo, but whether a second turn in response to a first primarily reflects a second speakers' orientation towards the immediately preceding local interactional context. Particularly typed turns can be the outcome of a given speakers' (however accurate or inaccurate) interpretation of the communicative action currently in progress and do, therefore, not necessarily rely on, nor always point towards, an assumed internal, individual, neuro-cognitive status quo at a given point in time along the overall forward-trajectory of second language development.

The implications of this insight for analyzing post-instruction data segment (2) above are significant. In light of the doubly contextual nature of turns-at-talk, and in light of the circumstance that interaction does not proceed along invariant, monolithic lines as speakers (mis)interpret other speakers' actions with each uttered turn, the emergence of an L2 telephone opening sequence visible in segment (2) above can also be seen, at least concerning *next* turns, as locally occasioned irrespective of individual language development. The difficulty, then, lies in bringing an analysis to bear on the data that convincingly specifies, or at least narrows down more precisely, which may in fact be which.

Differentiating speakers, first, and next actions

Let us reexamine segment (2) above and break it down into its constituent sequences and turns. My goal is to specify to which extent we may, in observance of this instance of language use, separate both speakers as individual social actors on the one hand, and as second language learners on the other hand. By analyzing their respective conversational actions in each extractable action sequence, we may be able to ascribe to one speaker or the other with more specificity *learning* of some or all aspects underlying German telephone opening sequences. This would require adjusting the analysis of segment (2) above in such a way as to identify evidence

for individual cognitive development separately for each individual interactant, however direct or indirect this evidence may be.

The summons-answer sequence, as outlined above, consists of the ring of the telephone (first turn: summons) and the recipients' answering the telephone (second turn: answer). While in AE, the answer is generally accomplished by providing a greeting token, in German, speakers generally self-identify by name with a rising intonation. Consider the summons-answer sequence extracted from segment (2) above:

(3) Post-instruction: Summons-answer sequence [Karen, Todd second]

01 ring

02 kar: karen graham?

karen graham?

03 todd: hallo hier ist todd

hello this is todd

For Karen, the answer to the summons (karen graham?, line 02) comprises the second turn in the summons-answer sequence. She accomplishes that action in the typical German fashion by stating her full name with rising intonation. Since this does not constitute L1 transfer, and since this action is not contingent on another speaker's prior turn but rather reacts to the summons of an electronic device, this typed turn can only have occurred as a result of prior pedagogical intervention, and of the subsequent internalization of that intervention by the student. We conclude specifically: Karen's individual interactional competency has indeed undergone a discernable change over time as she is able to produce a typed turn in a particular format at a given point in time in the interaction that is specific to the L2. She has clearly learned about, and developed the interactional competency to provide, the second part of a summons-answer sequence. We can thus establish beyond a doubt that Karen experienced neuro-cognitive change over time (i.e. interactional development), an unequivocal sign of individual language learning based on a recorded instance of language usage. We do not know if Todd did so as well as he is the caller, not the recipient.

Let us proceed to the second sequence in line, namely the identification/recognition sequence. In AE, speakers usually produce greeting tokens to achieve this action, while Germans typically self-identify by name. We have already seen that Karen is doing exactly what Germans typically do (karen graham?, line 02), thus demonstrating language learning. What does the data segmet reveal about Todd? First of all, we note that Karen's turn in line 02 (karen grahman), while constituting the 'next' (i.e. second) turn in the summons-answer sequence, concurrently provides the first turn of the identification/recognition sequence, and Todd will likely react with a relevant 'next' turn to conclude the process of mutual identification/recognition. And Todd proceeds to self-identify by name (hallo hier ist todd, line 03). As we know, German speakers often meet the recipient's self-identification by name with self-identification by name in the next turn while AE speakers generally utilize greetings tokens or other forms of voice sample for this purpose. Hence, Todd does apparently not engage in L1 transfer, but provides a discernable typed turn typically found in German telephone data.

Can we, then, conclude that Todd has indeed produced his turn in line 03 because he has learned

to do it, comparable to Karen having learned about how to answer the summons German-style? The answer to this question is, in fact, problematic. Previous learning of the ability to produce such a typed turn is of course a plausible prerequisite for that specific turn's subsequent production. However, it is important to note that interactants, including second language learners, may relevantly interpret immediately preceding self-identification by name by their interlocutor as a prompt to self-identify by name as well - without any formal learning about opening up telephone conversations in German at all. In other words, while demonstrably producing what looks to us like a relevant next turn in response to a first that orients to identification/recognition sequences typical for German speakers, Todd may not in fact produce a *product* of prior learning to produce a particularly typed turn at a precise point in the back and forth of talk. Rather, Todd may simply be orienting to the perceived contingencies of what Hall and Pekarek-Doehler (2011) refer to as a *change in local context* (see above): Todd meets prior self-identification by name with self-identification by name. And this is, in fact, possible without learning about how German speakers typically "do this" - otherwise German speakers would not be able to make this particular inference in the first place.

In sum, it remains unresolved whether Todd's turn in line 03 is a verifiable product of learning. Todd could have produced this either due to successful interactional development, indeed as a result of a bona fide case of language learning over time. However, Todd could also have produced this turn without any exposure to, and participation in, the two-day teaching unit on German telephone openings, simply based on an inference of what to relevantly "do next" in an unfamiliar (or changed) local context. In order to ascertain with any certainty Todd's ability to do this *because of* successful language learning rather than because of orienting to the relevant possibilities of the local context, additional data would be needed, such as a questionnaire that targets participants explicit knowledge about the sequential organization of telephone openings as a whole and mutual identification/recognition sequences in particular.

Third, let us address the *how are you* sequence. These sequences are frequent, usually reciprocated, and thus consist of two adjacency pairs (two question-answer sequences) in AE. In German interactional data, they are rare, and if produced, they are typically unilateral and sometimes but not always used as first topic rather than preceding first topic. Consider the *how are you* sequence extracted from example (2):

(4) Post-instruction, how are you sequence [Karen, Todd second]

04 kar: oh hallo todd wie geht's

oh hello todd how are you

05 todd: oh mir geht's gut? aehm was machst du am samstag

oh I am fine? uhm what are you doing on Saturday

Karen produces hallo todd wie gehts (line 04). Given that how are you sequences occur in both languages, we cannot clearly establish whether this turn is typed in such a way as to initiate a brief mechanistic routine (AE) which would constitute an instance of L1 transfer. It is also possible that this turn may be produced to provide an opportunity to be expanded into a first topic (German). This first position of an ensuing how are you sequence, produced by Karen, is thus highly ambiguous, and we can conclude little about whether Karen, in producing this (however typed) turn, has either learned L2 structures and produces a token thereof here, feels inclined to

produce them, or whether we see L1 transfer in action. Ultimately, the data provide no access to Karen's intentions. For this initial turn to develop into a discernable L1 or L2 structure depends on how Todd treats it by way of his next turn and its attendant action(s). Todd proceeds to respond with a brief, mechanistic response relevant at this point (oh mir geht's gut?, line 05). However, he then proceeds to initiate first topic (aehm, was machst du am samstag, line 05) without reciprocating the *how are you* sequence. Thereby, he brings the *how are you* sequence to a unilateral end.

Unilateral *how are you* sequences are highly uncommon in AE and were in fact not found in the pre-instruction data at all. They were, however, the object of classroom instruction (see table 1), linking Todd's next turn in response to a prior first to prior pedagogical intervention. Todd hence produces a product of a previously initiated process of interactional learning: treating a *how are you* sequence, should it occur, as relevantly complete once it is minimally, i.e. unilaterally, complete. We therefore have another unequivocal piece of evidence allowing us to conclude that an individual neuro-cognitive process between two points in time (i.e. language learning) was complete to such a degree that Todd was able to deploy in a defined interactional context (a next turn in the context of a *how are you* sequence in the context of a telephone opening) a discernable product thereof, namely a particularly typed 'next' turn complete with its attendant sequential implications. However, we cannot ascertain much with any certainty about Karen's interactional abilities in this specific context as her turn in line 04 is ambiguous. Here, Karen merely initiates a potential trajectory for what would eventually become a unilateral *how are you* sequence. However, that subsequent development is entirely due to Todd's uptake.

Closing the analysis, we note the following. Relating Karen and Todd's collaborative enactment of telephone openings as they were recorded pre-instruction and post-instruction to one another, we can clearly establish that in the absence of pedagogical intervention, second language learners, when using "words and grammar" of the L2 in their talk, overwhelmingly transfer their interactional competencies (i.e. the sequential organization underlying telephone openings) from their L1 into their L2 talk. Usage-based data such as those discussed here are capable of ascertaining this unambiguously. Hence, the first step in a longitudinal study focusing on the potential development of interactional competencies over time is sufficiently served by usage-based data.

Relating post-instruction data to pre-instruction data is more problematic. First, the analyst has to consider the inherent potential for pragmatic transfer and the partial overlap of discernable actions in similar sequential environments that, in concert, organize an overarching activity type in two languages (here: telephone opening sequences). Second, a usage-based analysis such as this requires close attention to what each individual interactant is doing in a given position in the back and forth of talk, to which extent these actions may reflect local interactional contexts on the one hand, or whether they may in fact point towards observable instances of language learning on other hand

As we have seen, a data segment such as (2) above may provide different analytic avenues with different analytic outcomes. If we consider Karen and Todd' overall interactional achievements as manifest in the post-instruction data set, we have relevant evidence that allows us to conclude that their talk, indeed, emerges in a shape that is congruent with the sequential organization of German telephone openings. If we focus on the level of distributed cognition, on the level of that

which Karen and Todd collaboratively achieve through their talk in a tightly controlled interactional environment across two points in time, then we are almost bound to ascertain change over time (i.e. interactional development, i.e. language learning) based on a comparative analysis of pre-instruction and post-instruction data.

However, if we focus on the level of individual neuro-cognitive development of either participant, then ascribing causality between a largely complete process of learning and its product (i.e. the production of a typed turn in position X of a given sequence Y in the context of a series of sequences organizing an overarching verbal activity Z) is only possible for parts of the observable data. It is possible for some of the turns, but not for all of them. However, it is notable that a usage-based data set such as this is demonstrably capable of ascertaining bona fide instances of language learning based on empirical evidence.

Conclusion

I have provided a study that draws from a usage-based data set encompassing both social and neuro-cognitive aspects of interaction via its longitudinal design and via its contextual control. The social-interactionist dimension of this study was served by keeping stable the local context for a configuration of conversational actions as I investigated the routine activity of telephone opening sequences. The individual neuro-cognitive dimension in this study emerged from providing a contrastive analysis of language use in interaction within a stable interactional context by the same speakers *at two different points in time*.

I first provided an analysis of an instance of language use by two specific interactants in terms of distributed cognition. The analysis suggested that, on the social level of analysis, it was possible to conclude that usage-based data were able to ascertain change over time concerning a definable interactional competency (i.e. jointly producing German telephone openings). Data segment (2) clearly showed an example of second language learners not engaging in L1 transfer, but rather orienting to the sequence structures underlying German telephone opening sequences after pedagogical intervention. Thus, on the social-interactional level, the data clearly point towards evidence for interactional development over time, apparently demonstrating that language learning can be documented with usage-based data.

However, in a second analysis of the same data segment in terms of individual neuro-cognitive development over time, I demonstrated that it is *not* possible to infer from the above observation that the manifest L2 sequence structures in this example (collaboratively produced as they are) equally point towards individual cognitive development for each interactant. A sequence-by-sequence breakdown of Todd's and Karen's post-instruction telephone opening showed that, for some turns, no unambiguous evidence pointing towards individual language learning can be found. For other turns, however, strong evidence for individual language learning ("change over time") can clearly and separately be seen for each interactant.

Alongside others (Eskildsen, 2011; Hellerman, 2008), this study suggests that usage-based data is capable of documenting instances of language development over time. This is possible even if we are not primarily studying morpho-syntactic aspects of language, but if interactional (sociolinguistic/pragmatic) aspects of a second language in question are under scrutiny. However, studying multi-turn sequences in a longitudinal format involves a certain measure of chance due to the emergent nature of talk. It was in part chance that produced data segment (2) as cognitive

and interactional factors aligned for Todd and Karen to provide a bona fide German telephone opening sequence. Cross-disciplinary data sets that alleviate this obvious drawback would be desirable for future inquiry.

Since, as this study has shown, relying solely on usage-based data involves promising opportunities as well as predictable constraints, future studies seeking to study typed turns and sequences thereof in second language contexts would benefit from research designs that encompass both the social and the cognitive by utilizing additional data sets such as questionnaires, interviews, written accounts, or reflections of participants on the subject matter. This would gain valuable insight about various L2-related competencies and developments-inprogress as they may be relevant for second language learners. These are then in position to be coupled with insights gleaned from usage-based analyses to gainful effect. As Seedhouse (2010, p.1) notes, conversation analysts as well as proponents of other usage-based research methodologies are indeed called upon to collaborate with researchers from, and across, vastly different disciplinary traditions. Such research may focus on the extent to which interactional aspects of talk, including knowledge about the sequential organization of typed verbal activities, are implicated in the overall trajectory of second language emergence; how they relate to the progressive entrenchment of linguistic and social structures in individual learners on all levels of analysis; and how beginning and advanced second language learners may successively display change over time regarding a given, specifiable aspect of language.

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¹ Another issue I cannot pursue further is the conceptualization of usage vs. learning as separate or the same, as in fact, in usage-based linguistics (UBL), language use and language learning are viewed as virtually indistinguishable. If language usage is the driving mechanism for progressive neuro-cognitive entrenchment of particular L2 structures over time, including interactional structures on the sequential level, then language use and language learning are indeed to be viewed as two delineable aspects of the same process, i.e., use and learning can be viewed as two sides of the same coin (Eskildsen, 2011). This duality might be acknowledged more frequently in the field at large.

² Open role play/conversation task instructions for the respective interactants were phrased as follows. **CALLER:** You are yourself, today is the current date. You are calling your partner because you misplaced/lost your book on German idiomatic expressions. In order to complete your homework, you request to borrow the book from your partner. Relate all the circumstances to your real life situation. While you need to accomplish your conversational goal, you are free to talk about anything you wish in addition. You need to talk about 7-10 minutes. **RECIPIENT:** You are yourself, today is the current date. You will receive a telephone call from your partner. It is entirely up to you how you respond. Circumstances permitting, give your partner a compliment. You need to talk for about 7-10 minutes. ³ As Koschmann (2011, p. 435) quotes Garfinkel (1952, p. 367): "The big question is not whether actors understand each other or not. The fact is they do understand each other, that they will understand each other, but the catch is that they will understand each other regardless of how they would be understood." In other words, and rephrased for the purposes of this study, this means that whatever first speaker initiates, transferred from L1 or learned from exposure to, or from pedagogical materials about, the L2, and whatever second speaker produces in response when meeting first speakers' first actions with a given 'next', transferred from L1 or learned from exposure to, or from pedagogical materials about, the L2, does not always produce outcomes that are intended by either or both interactants. In talk-in-interaction, mutual 'understanding' is not guaranteed.