Learning through gesture: embodied repetitions in tandem interactions

Loulou Kosmala
Paris-Est Créteil University (IMAGER)
loulou.kosmala@u-pec.fr

Abstract

Grounded in an interactional framework, this corpus-based study presents an analysis of multimodal tandem interactions held in English between tandem partners (L1 and L2 speakers) to study other-repetitions across different levels and modalities. In particular, I investigate cases of embodied repetitions in contexts of co-construction and repair whereby tandem partners negotiate meaning. Based on careful micro-analyses of data fragments, analyses reveal different types of temporal coordination between the repetition of the target item and/or of the gesture, addressing specific issues at different linguistic levels. While repetitions typically occur in linguistic-oriented contexts, emerging gestures may further contribute to mutual understanding and alignment.

1 Introduction

Research in Second Language Acquisition (SLA) has increasingly gained an interest in the study of gesture in L2 learning. Gestures are said to provide a window onto cognition (Goldin-Meadow, 1999), and a series of perception experiments have highlighted the facilitative role of gesture for vocabulary (Huang et al., 2019), phoneme acquisition (Hoetjes and Van Maastritch, 2020), or L2 pronunciation more generally (Gluhareva and Prieto, 2017). In particular, the present study is grounded in an interactional approach to language learning, drawing on conversation-analytic (CA) methods, and thus considers learning processes at the *heart* of face-to-face interactions. The study of *CA-for-SLA* (Pekarek Doehler 2006; Pekarek Doehler and Pochon-Berger 2011; Mondada and Pekarek Doehler 2004), for instance, has highlighted the socially situated dimension of L2 learning captured in actual language use in its natural ecology. In this respect, tandem settings (Calverts and Brammerts, 2003) are a particularly relevant context to study situated language learning, since they rely on a friendly and low-hierarchy relationship between tandem partners, as opposed to more institutional teacher-student relations, during which the interactants also engage in authentic conversations, rather than artificial perception or production tasks in experimental tasks. The present study is conducted on a selection of the SITAF Corpus (Horgues and Scheuer, 2015) which comprises English interactions between tandem partners at university (English L1 speakers and French L2 speakers) during a narrative task. Previous work on the same data has highlighted the multimodal dimension of tandem interactions, with a focus on the role of gesture in corrective feedback, communication breakdowns, fluency mechanisms, and chains of reference (Debras and Beaupoil-Hourdel, 2019) and the aim of the present study is to explore the role of gesture in L2 learning and understanding at different linguistic levels, through embodied repetitions.

2 Repetitions in L2 interaction: from speech to gesture

Speech repetition is a key aspect of L2 acquisition and has been used successfully in L2 teaching and learning, including repetitions and imitations of words and sentences (Ghazi-Saidi and Ansaldo 2017). Repetition has been regarded as a way of "providing learners greater access to language forms […] as a means of enabling learners to develop automaticity in the target language" (Duff 2000, 109). While the present work does not dwell on classroom interactions, it is relevant to note that some studies have also highlighted the collaborative and intersubjective nature of utterance repetitions during students' joint writing assignments (e.g. DiCamilla and Anton, 1997). In

addition, repetitions in L2 interactions are not solely associated with learning and acquisition, but also point to affective participation (Skehan 1998). In addition, several studies conducted in corrective feedback and miscommunication point to the sequential organization of repetitions (e.g. Debras et al., 2020; Horgues & Scheuer, 2017). While their main focus has not been on repetitions per se, these studies have shown a tendency for L1 speakers to repeat L2 speakers' utterances when they have trouble understanding, or to provide corrective feedback. When corrective feedback is provided, the L2 learners would also frequently provide *uptake*, i.e., a repetition of the prior target form with the correction.

When it comes to *embodied* repetitions, with the repetition of gestures in particular, previous studies also conducted in the classroom have shown that matching gestures can be used to highlight aspects of learning, as well as to display recipiency and co-participation. For instance, in a study conducted on Swedish, grounded in a conversation analytic framework, Majlesi (2015) has shown that gesture repetitions in the context of L2 learning may serve two functions: (1) to address prior actions and maintain intersubjectivity, and (2) to provide learning opportunities during correction and instructional sequences. In another study on Mexican Spanish learners of English, Eskildsen and Wagner (2015) have illustrated the joint construction of speech and gesture during collaborative picture-describing activities, with instances of repeated gestures produced with variations in pace (e.g. gestures repeated more slowly by the instructor). The authors also point to two embedded functions of gesture in these learning situations, namely displaying shared understanding, and integrating these processes of understanding.

Studies conducted outside the classroom have also described the roles of gesture as communication strategies to solve different types of linguistic problems at the lexical, syntactic, or pragmatic level (Gullberg 2011). In adult-child conversations more specifically, Graziano et al., (2011) have described examples of "parallel gesturing" (also known as "gesture mimicry" by Kimbara, (2006) or "gestural alignment" by Bergmann and Kopp, 2012, among other terms) during which the adult or the child repeats speech and gesture to display understanding or to provide corrective feedback, among other actions.

In sum, embodied repetitions, involving speech and gesture, do not only exemplify learning processes, but also point to the structural and intersubjective nature of interaction itself, whereby interactants demonstrate different forms of involvement and participation. The focus here is on tandem interactions held outside the classroom during specific learning contexts which may result from a trouble or repair sequence. Analyses will show how embodied repetitions may not only assist the learner in their target language at different linguistic levels (lexical, syntactic, phonological), but also address and resolve issues in understanding, as well as to mark recipiency and alignment.

3   Data and Method

The data under study is based on the SITAF Corpus (Horgues and Scheuer, 2015) which comprises 24 videotaped dyadic interactions between L1 and L2 speakers in English and French. The dyads were paired through a tandem program at university, and the participants regularly met outside the recording sessions to exchange in their respective L1 and L2. The selected sample comprises eight pairs (selected randomly) from the corpus, during which the participants performed a narrative task called "Liar Liar" in English. The aim of the task was for one of the participants to retell a story in which they had to insert three lies that their partner later had to identify. In this case, the stories were told in the French speaker's L2 (English). The selected sample, including the duration of the exchanges, are reported in Table 1.

Pair 1	06:40
Pair 2	03:22
Pair 5	05:17
Pair 8	03:04
Pair 9	08:13
Pair 10	05:29
Pair 11	04:46
Pair 15	05:09

Table 1: Data sample (duration in mins)

All instances of other-repetitions (identical repetition of the interlocutor's previous word, utterance, or gesture) were categorized in the data, distinguishing between speech repetition, gesture repetition, and gesture-speech repetition. In addition, the different possible functions of these repetitions were identified, based on the SLA and gesture literature: (1) corrective feedback, (2)

uptake, (3) misunderstanding, (4) confirmation, and (5) alignment.

4 Overview of the data

Results show a total of 77 repetitions across the 8 pairs, with a majority of speech repetitions (N=51/77) but also instances of embodied repetitions, (N=26/77, including gesture and speech-gesture repetitions).

	Gesture	Speech	Gesture-speech	Total
L1 speakers	6	25	5	36
L2 speakers	10	26	5	41
Total	16	51	10	77

Table 2: Number of repetitions across the 8 pairs

Analyses further show the different functions of these repetitions, based on the modality, as reported in Table 3:

	gesture	speech	speech-gesture	Total
confirmation	0	7	2	9
corrective feedback		11	5	16
misunderstanding	0	6	0	6
alignment	15	6	4	25
uptake	0	17	0	21

Table 3: Distribution of functions across modalities

While a majority of the repetitions occur in corrective feedback sequences (N=37, including 'uptake'), it is interesting to note that 25 instances are used to display alignment and understanding, with a majority being in the visual-gestural modality (through gesture and speech-gesture repetitions).

These quantitative results are further illustrated in the following data fragments, which are based on three pairs of the corpus (Pairs 8, 10, and 11). They focus on cases of embodied repetitions more specifically, as well as the linguistic levels involved (lexical, syntactic, phonological and morphological) looking more closely at the relationship between gesture and speech.

5 Illustrative cases: gesture and speech repetition

5.1 Lexical level

In this first example, taken from Pair 11, the L2 speaker is describing a place where she spent her winter in a castle surrounded by big hills, and explains how she and her family were stuck inside the castle for three days because of the snow.

L2: *it was in December so it was really really cold.*
L1: *yeah yeah ((nods))*
L2: *and it's snowing [a lot a lot.*
L1:   *[ok*
L2: *and we:e (.) we have to stay in the castle three days*
L1: *ok ((laughs))*
L2: *because there's ((both hands raised in the air to represent a pile of snow))*
L2: *because we're on the:e what's the word on meadow↗ ((left hand raised high up with palm down))*
L1: *yeah*
L2: *but a a big meadow so hhh. when [you're*
L1:   *[meadow↗*
L2: *yeah a sort [of mead[ow↘*
L1:   *[ok*
L1:   *[ok ((nods))*
L2: *not a mountain but a little mmm between meadow and [mountains ((moves both hands up and down in alternating motions))*
L1:   *[o::ok ok yeah yeah*
L2: *a:[and*
L1: *[like big hills↗↘ ((raises his left hand and waves it in the air to represent the hills, pic.1))*

1.

L2: *yeah big hills↘ ((produces a similar gesture in synchrony, pic. 2))*

2.

L1: *ok ((nods))*

In this example, the L2 French speaker is experiencing lexical difficulties when describing the castle's surroundings. After explicitly displaying her ongoing search ("what's the word") she offers the word "meadow", but pronounced incorrectly *[*midoʊ]*, which seems to lead to a trouble in understanding on the L1's speaker part, who repeats the target word with a rising intonation, using the correct pronunciation. The L2 speaker then further elaborates her description of the surroundings, introducing the word 'mountain',

to which the L1 speaker replies with several tokens of understanding ("ok" and "yeah"). In the subsequent turn, the L1 speaker suggests the noun phrase "big hills" introducing a novel lexical item, during which he raises his left hand in the air in a waving motion to represent the shape of the hills (pic. 1). The L2 speaker then repeats the target words and reproduces a similar gesture in synchrony (pic. 2). As previous studies have already suggested, these matching and synchronized gestures may serve two simultaneous functions: (1) to resolve the current misunderstanding and display alignment and recipiency, (2) to orient to the novel lexical item "hill" as a *learnable* (Maljesi, 2015).

5.2 Syntactic level

In this second exchange, held a few minutes after the first excerpt, the same L2 speaker is describing the insides of a car after it had been snowed in.

L2: there was interior in leather

L1: inter – oh the leather interior – so switch those words leather interior (("switch" U-shaped gesture, pic 3))

3.

L1:   [not interior leather

L2 yeah yeah [because he has] a Ferrari he has leather in (.) in [the car

L1: yeah yeah [it's just what you said (.) you just switch the word ((switching hand gesture+ "two" handshape, pic 4.))

4.

L2: ok

L1: so it's leather interior not interior leather ((L2's both index fingers raised and held, followed by a similar switching hand gesture, 5.))

5.

L2: leather interior ((repeats the same switching hand gesture))

L1: yeah there you go!

In this case, the issue does not seem to be lexical, but syntactic, with the matter of word order. Unlike the previous example, the target words "leather interior" become a highlighted pedagogical focus, where the L1 speaker adopts a much more instructional posture as he takes some time to explain the switch in word order from "leather interior" to "interior leather". His "switching" gesture, produced with both hands using two fingers in alternating motions (pic. 3), is very similar to what have been labeled 'pedagogical gestures' in instructional conversations (e.g. Tellier and Yerian, 2022). It takes some time for the L2 speaker to understand this shift in tone and orient to this pedagogical sequence, and when she does, she repeats a similar switching gesture (pic.5), but produced with index fingers moving sideways in a cross. Once again, the two gestures are produced simultaneously, and once the L2 speaker provides *uptake*, i.e., repeats the correct target form with the right word order, the L1 speaker provides praise and uptake validation ("yeah there you go!").

5.3 Phonological and morphological level

In the following example (analyzed in detail in Kosmala et al., 2023) the L1 speaker adopts a similar instructional posture and explains the plural form of "geese" using his hands.

L1: you can say for (.) um there's one than more goose (.) they're geese ((right hand curved into a U shape moved to the side))

L2: geese ((stretched lips))

L1: geese yeah it changes to "ee" in the middle ((spells the vowel digraph in the air))

L2: ok yeah ((repeats a similar hand-spelling gesture))

L2: so geese ((stretched lips))

Once again, the target word 'geese' becomes a relevant pedagogical topic to which the two tandem partners jointly orient to. The L1 speaker provides both morphological and phonological explanations from the change of 'goose' to 'geese' with the shift to the plural form. He illustrates this shift with a specific U handshape (similar to the previous excerpt) and moves it from left to right. As the L2 speaker repeats the target word in a hyperarticulated way, the L1 speaker then spells the vowel digraph "ee" in the air to further illustrate a change in pronunciation. The L2 speaker then first

repeats the target word without the gesture, and then reproduces the same hand-spelling gesture, perhaps to better help her visualize the word.

6 Illustrative cases: gesture or speech only repetition

These examples have shown cases of both gesture and speech repetitions in contexts of co-construction to highlight several linguistic aspects of the target language (lexical, syntactic, and phonological). The next examples illustrate cases in which the repeated elements are either speech or gesture only, following the repair initiated by the L1 speaker.

6.1 Speech-only repetition

In the next example, taken from Pair 10, the L2 speaker is talking about a dance class she had over the summer and retells a moment during which she playfully fought with her dance partner using ballet shoes.

L2: um (..) I (..) I uh ((moves her hands in space)) [!] my my ballet shoes is uh ((mimics the action of throwing something away with her right hand))

L2: I give up of my hand↗↘((frowns and looks towards her interlocutor))

L1: um ((frowns))

L2: uh we fight and ((repeats the gesture with both hands+ winces+ laughs, pic 6))

6.

L2: ((in French)) je l'ai lâché↗↘ ((repeats the same throwing-away gesture))

L1: um (.) ((looks sideways)) you let it - you let it go↗↘ ((repeats the same throwing-away gesture))

L2: yeah I let it go ↘ ((places both open palms opposite her and towards her interlocutor))

In this example, the L2 speaker is demonstrably having difficulties at the lexical and syntactic levels, as she does not know how to verbally express the action of throwing one's shoes away. She first offers the structure "I give up of my hand" which the L1 speaker does not understand, and then resorts to her first language (French) to describe the action. As she does so, she repeatedly produces a sort of "throwing-away" gesture by which she

mimics the action of throwing or letting go of an object in the air (pic. 6). After some delay (marked by filled and unfilled pauses), the L1 speaker provides the correct target structure ("you let it go") and repeats the same throwing-away gesture. However, when the L1 speaker repeats the target words (with a turn-initial "yeah" marking agreement), she does not repeat the same gesture, but places both her palm-up open hands opposite her and towards her interlocutor to convey her alignment and understanding. While she does use speech to repeat the linguistic target, she does not resort to gesture to do so. The repetition of the target item was thus only performed at the verbal level. The next example illustrates the opposite tendency, with the repetition of the gesture, but not of speech.

6.2 Gesture-only repetition

In this excerpt, taken from Pair 8, the L2 speaker is retelling an experience she had with a playboat (kayak) in the summer.

L2: when I was doing kayak (.) I::I uh – it was very quick in the water ((left hand reproduces the movement of the water with an open palm facing down, moving sideways))

L1: ((nods))

L2: so:o (..) so my (.) kayak uh (..) turned upside down↗ ((places both palm-up open hands then moves her right hand above her left hand facing down, pic 7)

7.

L1: flipped over ↘ ((produces a similar flipping-over gesture in synchrony, pic 8))

8.

L2: yeah ((repeats the same gesture more quickly))

In this sequence, the L2 speaker is also experiencing difficulties with the description of a

specific action, and resorts to a sort of "flipping-over" gesture (pic. 7) to describe her incident with the playboat. She offers the verbal phrase "turned upside down" which is immediately corrected by the L1 speaker who suggests "flipped over" instead, while repeating the gesture (pic. 8). Unlike the previous example, the L1 speaker repeats the same gesture once more in her subsequent turn, in a faster pace, but she does not repeat the target word. Instead, she produces a verbal agreement token ("yeah"). This is very similar to the cases of gestural alignment explored in previous studies (see Rasenberg, Özyürek, and Dingemanse 2020 for example) with matching gestures to display aligning responses.

The last two examples have illustrated how gestures may assist learners with the spatial description of actions in motion when they did not have sufficient knowledge of the L2 to provide the accurate verbal expressions or prepositions. While these gestures also helped the L1 speakers gain visual access to what the L2 speakers were describing, they also contributed to the overall flow of the interaction, matching the interactants' mental representations of the event. In addition, these examples did not foreground a specific pedagogical sequence, which was not treated as relevant in these cases by both parties, but still contributed to mutual understanding.

7 Conclusion

The aim of this preliminary corpus-based study was to highlight the role of gesture in L2 interactions in contexts of repair and co-construction during other-repetitions. Even though repetitions tend to be mostly verbal and relate to linguistic content, several cases of embodied repetitions have shown that gestures may further contribute to mutual understanding and alignment. As the literature has suggested, matching gestures can be used to serve several functions, both interactional- and pedagogical-oriented to display alignment, understanding, and recipiency, or to gain access to a linguistic feature in the L2, using repetition as a way for the L2 speaker to perhaps better memorize the target words all the while being engaged in the interaction. Embodied repetitions were shown to emerge across three different types of linguistic issues, at the lexical, syntactic, morphological and phonological levels. In addition, the analyses illustrated different types of temporal coordination between the repeated

elements with cases of speech- or gesture- only repetition, following the repair initiated by the L1 speaker, highlighting different types of orientations towards the learning sequence. In some cases, the gestures epitomized the pedagogical-oriented sequence initiated by the L1 speaker, leading to a joint instructional focus, while in other cases it was mostly used to display more interaction-oriented features, such as intersubjectivity, alignment, and mutual understanding. However, the number of occurrences in the data under study remains relatively limited, so more work should be done on the rest of the corpus to complement these preliminary findings.

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