

## Introduction –Short Guide to Reading

Speakers are situated cognizers who language meaningful units of talk. Meaning is achieved socially (Halliday, 1978) through the combination of multimodal signs (Hodge and Kress, 1988; Lemke, 1997; Kress and van Leeuwen, 2002) in composite semiotics (Enfield, 2009). By composite semiotics is meant the intersection of different semiotic resources speakers use to contextualise own talk (see Chapter 1). Speakers make use of different cues (Gumperz, 1982, 1992) to contextualise (Auer and Di Luzio, 1992) meaningful action in interaction. Some of these cues are prosodic (Couper-Kuhlen and Selting, 1996), so they relate to phonological and intonational aspects of talk like pitch, rhythm (Chafe, 1992, 1993, 1994; Local, 1992; Local and Walker, 2004), tempo, etcetera. Others are multimodal and relate to non-verbal aspects of communication such as gaze (Goodwin, 1981, 2003; Kendon, 1967, 1973, 1994; Kendon and Cook, 1969; Rossano, 2012); gestures (Kendon, 1972, 2004; McNeill, 1992, 2005), facial expressions (Ekman and Friesen, 1983) etcetera.

In this work, the composite semiotics (see Chapter 1) of repair (Sacks et al., 1974, Schegloff et al., 1977, 1978; Schegloff, 1992; Drew and Heritage, 2006b) in interaction is micro-analytically and multi-modally analysed (see Chapters 3). The term ‘Interactional Repair’ (or conversational repair) is used to refer to a set of practices used by speakers to deal with both factual and potential troubles in speaking and/or hearing (see Chapter 2).

Together with talk in interaction, two other variables are considered: facial movements and pitch movements. Thus, the unit of analysis is not a single unit, but the gestalt composite unit; the ‘multimodal utterance’ (Hutchins and Nomura, 2001), that is the intersection (or combination) of different semiotic signs in the place of ‘conversational repair’ (Sacks et al., 1974, Schegloff et al., 1977, 1978; Schegloff, 1992; for an overview cf. also Drew and Heritage, 2006b).

Repair Unit + Facial Unit + Prosodic Unit
---

**Table 1:** Composite Unit of Analysis

The general research questions addressed in this work are “How does the composite semiotics of repair look like? What semiotic resources do situated cognizers use to repair

troubled instances of talk?“ These general questions can be broken down into further questions that detail the semiotic layers and correlate variables in analysis as follows:

- 1) Which micro-interactional units are semiotically marked as focal in the repair mechanism? How? (see section 3.5.1)
- 2) Are facial movements involved? How? (see section 3.5.2)
- 3) Are pitch movements involved? How? (see section 3.5.3)

These questions are investigated qualitatively in Chapter 4 and 5.

- 4) Is it possible to statistically trace tendency and variation for the combination of facial action units, pitch movements and interactional components of a repair sequence, so to derive a ‘system’ of correlate variables for the composite semiotics of – certain – repair types?

This question is quantitatively addressed in Chapter 6.

- 5) If such tendency exists, what does tendency tell us? What does variation tell us?

These questions are discussed in Chapter 7.

In order to provide multimodal, microanalysis of the composite semiotics of interactional repair, three methodologies were merged (see Chapters 3).

Interactional aspects of talk were investigated with Conversation Analysis, a methodology for unveiling interactional order, developed by Harvey Sacks in the late 60s. Interactional sequences were transcribed and compiled in a database with the help of the software platform ELAN (Max Planck Institute for Psycholinguistics, Nijmegen).

Intonational aspects of talk were discussed by performing Pitch Analysis. Pitch was automatically extracted with the aid of the software Praat, a suite of tools for speech analysis (Boersma and Weenink, 2014).

Facial movements were coded with the FACS (Facial Action Coding Scheme), a methodology developed by Ekman and Friesen 1983 and Ekman et al. 2003 to annotate muscular movements.

Data analysis was run on a set of multi-party and face-to face interactions in TV debates in French and Italian language. Thirty-seven (n=37) audio-video files were gathered from different sources (semi-institutional debates) and organised in two datasets by language (see Chapter 3). In total, approximately three hours of data was eventually analysed.

French and Italian languages were selected because the author is fluent and native in these. English was neglected because research on talk-in-interaction in English language is already copious. Moreover, a similar study was conducted on English language by Flecha-Garcia in 2010. While not focusing on repair, the author collected a set of map-description-task-elicited interactions, and observed eyebrow movements in dialogue and their relation to discourse structure, utterance function and pitch accents in English language (Flecha Garcia, 2010). Here, the author aims to bring a small contribution to the multitude of studies in existence (see Chapter 2) by adding some insights on the multimodal micro-composite structure of interactional repair, and by analysing tendency and variation in facial and pitch movements across repair types, in French and Italian. Two typological cognate languages were selected, in order to comparatively analyse similarities and/or differences. At a later stage, typologically different languages can also be considered (cf. Enfield et al., 2013).

For the purpose of this study, the action units (Ekman and Friesen, 1983) of the upper face and their combinations were transcribed see (Chapter 3). The Action Units of the upper face are AU 1, AU 2, AU 4, AU 5, AU 7 that is to say the movements of the muscles frontalis medialis (AU 1), the frontalis lateralis (AU 2), the corrugator (AU 4), the levator palpebrae superioris (AU 5) and the orbitalis oculi in pars palpebralis (AU 7), corresponding to inner brow raiser (AU 1), outer brow raiser (AU 2), brow lowerer (AU 4), upper lid raiser (AU 5), and lid tightener (AU 7) respectively. The combinations of these in the place of the unit of analysis were also considered (see Chapter 3).

As for intonational phonology, average and maximal pitch movements in a selection were analysed. By systematic analysis of facial movements and mean and maximum pitches in the sequences analysed, the aim is to find out whether there is a correlation between facial action units, pitch/loudness and interactional repair type, otherwise worded as 'composite repair'.

The composite repair unit is traceable and analysable in the Composite Transcript. The composite transcript is a graphic artefact that merges the composite unit variables selected. Consider the following sample, that is for the moment presented in the form of a conversation analytic transcript Extract 1. The broadcasting of the debate has just started (line 1) and the presenter is in the course of projecting the topic of the debate (lines 2 to 8), so this is a 'grounding' (Clark and Carlson, 1981; Clark and Brennan, 1991; Clark et al., 1983) of the topic to be discussed. This projection is pragmatically realised in the

form of a question, which is ‘rhetorical’, in that it does not require an answer at this point. As a matter of fact, current speaker does not select a new recipient, nor a new recipient self-selects. Thus, from a macro-analytic CA perspective this sequence is grounding the topic, even if it is de facto designed as a question. This is an instance of self-initiated self-repair, more specifically the correction of a speech error.

01 **de france vingt-quatre l=an deux**  
*of France 24*  
02 **hhh (0.420)**  
03 **du printemps arabe**  
*the arabic spring*  
04 **consancre=t=il**  
*does it consecrate*  
05 **(.)**  
06 **conSAcre=t=il**  
*does it consecrate*  
07 **l=echec de l=islamisme au pouvoir**  
*the failure of the islamists in power*  
08 **en egypte et en tunisie**  
*in Egypt and in Tunisia*

Excerpt 1: Ex 0001CA – FR File 05 – 00000006 – Sample 01

In line 3, the speaker fronts the theme (Halliday, 2004) of the topic (*‘du printemps arabe’* – *‘the Arabic spring’*). In articulating its rhematic part, in line 4, she produces a phonological error consisting of phonemic segment insertion the second ‘n’ in *‘consancre=t=il’* (in line 4). Error correction occurs after a micro-pause in line 5, by repetition of the phrase and correction of the troubled segment in line 6. The clause is eventually resolved in line 8 where the rhematic (ibid) part of the topic is presented. The main clause is syntactically complete in line 7, and line 8 is to be considered an increment adjunct in the form of glue on (Couper-Kuhlen and Ono, 2007), because prosodically integrated to the main question.

No cut-off (within the word) occurs in line 4 upon uttering the error source (i.e. the constituent biased by phonemic insertion). The speaker brings the unit to completion before going into a micro pause (line 5). She eventually corrects in line 6.

Multimodal aspects of this sequence can be graphically represented in the composite transcripts. The composite transcript is developed in Praat, and it merges tags and annotations from data compiled in ELAN. The composite transcript condenses the

following information for each sample: the name of the sample; the beginning and the end time of a sequence; talk in interaction; its translation into English; the analytic phenomenon in question; the mean and the maximal pitch, the duration and intensity of facial movements and their combinations.

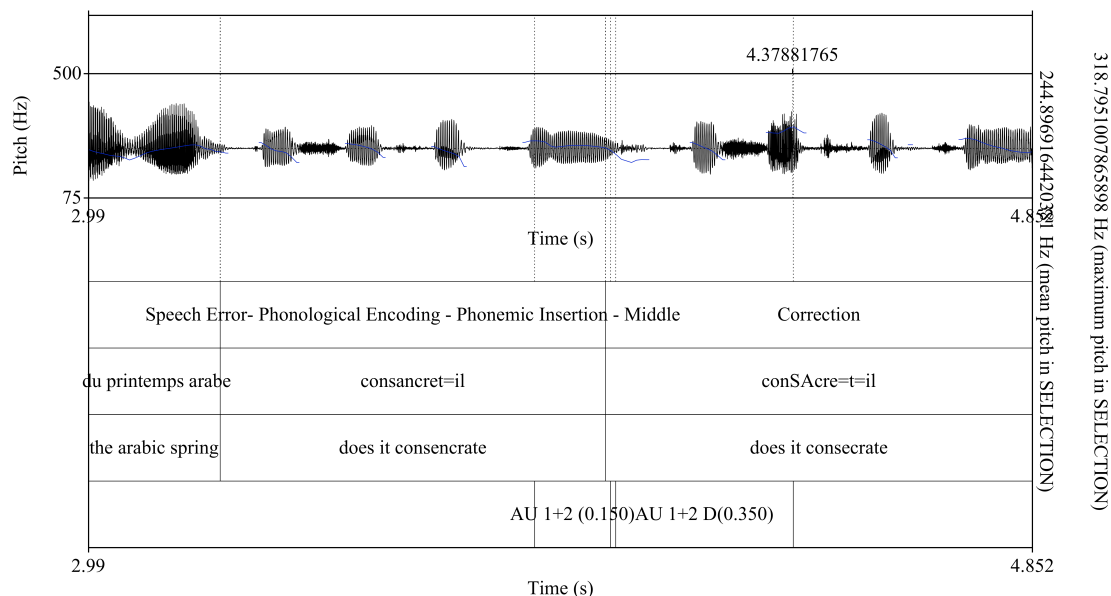


Figure 1: Ex 0001MC – FR File 05 – 00000006 – Sample 01

The name of the file can be seen in the accompanying caption (Ex 0001MC<sup>1</sup> –FR File 05 – 00000006 – Sample 1). This code means that the sample is the first excerpt analysed in Chapter 0 (Ex0001)<sup>2</sup>; it comes from File 05 of the French Corpus (FR File 05); and the cut of the phenomenon in Sample 1 lasts 6 seconds (00000006).

While the total duration of this sequence is six seconds, a shorter portion of it is visible in the multimodal transcript, usually 3 to 4 seconds, in order to gain granularity. The beginning of this sequence is at second 2.99 – numbers in the bottom left corners. The end of this sequence is at 4.85 – numbers in the right corners. The interactional phenomenon dealt with is in the text<sup>3</sup> in line 1 (i.e. speech error-correction). Talk in interaction is presented in the text in line 2. Its translation into English follows in the text

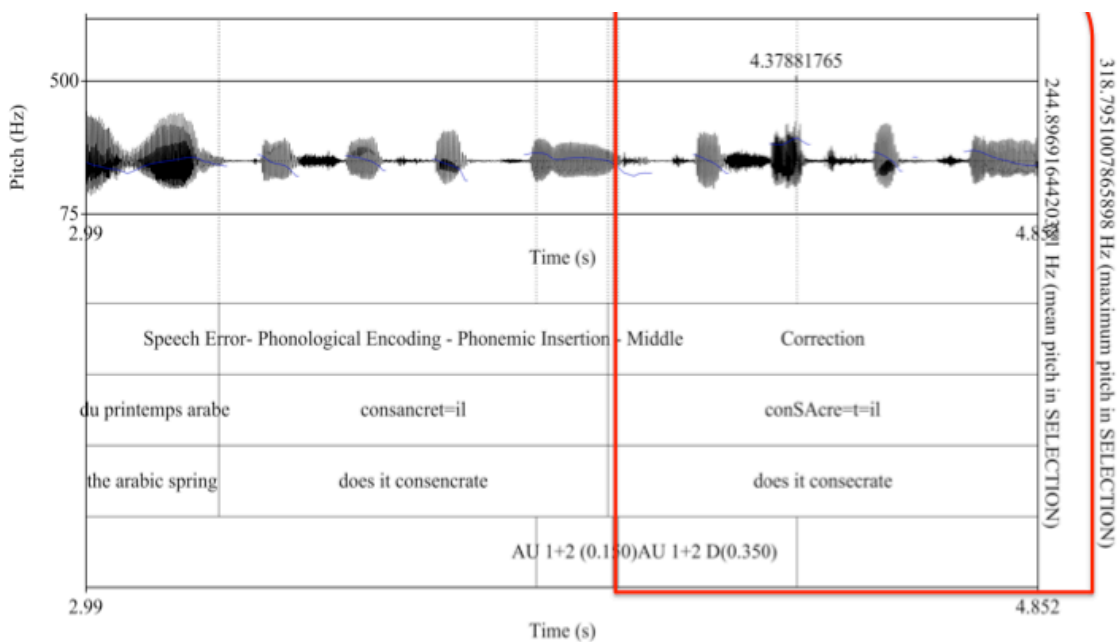
<sup>1</sup> MC stands for Multimodal Composite – Transcript.

<sup>2</sup> Examples are also ordered by Chapters, and by sample, The first two digits stand for the Chapter, and the last two numbers stand for the sample in that Chapter. Thus the code ‘Ex0101’ is means the first example in Chapter 1; the code ‘Ex0201’ means the first example in Chapter 2; the code ‘Ex0407’ means example number 7 in Chapter 4, and so on.

<sup>3</sup> I use the general words ‘text’ and ‘line’ here to establish intersubjective grounds with the reader, but in the terminology of the software used (i.e. in ELAN and Praat), these are technically called tiers (see Chapter 3 and 4).

in line 3. Facial movements are transcribed in line 4. Mean and maximal pitches are marked on the right hand side in this sequence. They are approximately 244 Hz and 318 Hz respectively.

Several vertical lines can be found on the audio-wave. Usually, these lines coincide with interactional segments, and/or with the beginning and the end of facial movements. However, in each sample, one of these lines marks the place of the maximal pitch. The line that marks the place of the maximal pitch can be distinguished from others as it carries its time code in the line immediately on the top of the audio wave. In the sequence analysed, the maximal pitch is achieved in the correction unit (at second 4.37881765).



**Pictures 1:** Ex 0101CA – FR File 05 – 00000006 – Sample 01 – Full Composite – Correction Proper

From an analytic point of view, two facial movements can be found in in Sample 1. The first is on the coda of the biased unit. The coda of the speech error is accompanied by an Action Unit 1+2, that is to say a movement of the inner and outer brow raiser (muscles frontalis medialis and lateralis). This eyebrow raise lasts 0.150 ms, and is thus a micro-facial expression because below 500 ms, which is the limit set in literature (Yan et al., 2013) to distinguish voluntary facial expressions from involuntary leaked ones. The second facial combination is placed on the unit correction. It is more marked than the

previous as the notation ‘D<sup>4</sup>’ suggests, yet – allegedly – still involuntary as it lasts 0.350 ms. The first syllable of the corrected segment is stressed, but the second, which is in the place of the correction proper is accented and higher in pitch, reaching a frequency of 318.8 Hz. In the sample just analysed, the maximal pitch accent combines with a short but intense raise of the eyebrows. Generally speaking, we can say that these overlap (or intersect) on the correction unit. We assume the speaker uses the specific combination of multimodal cues in order to contextualise repair.

Not only speech error-corrections, but also, some other repair types are analysed in this work like replacements, recyclings, edits and etcetera.

In line with previous research, It will be later detailed in Chapters 1, 2, and analysed in Chapters 4 and 5 that some of these units are ‘hybrids’ as they are multi-units (Local and Walker, 2004), and can thus be further broken down in minimal subunits (Fox and Jasperson, 1995). For example in the case of Sample 1, in the unit ‘correction’ that is a ‘repeat’ (Jefferson and Schegloff, 1975; Schegloff, 1987) we can identify a ‘correction proper’. The ‘correction proper’ is the place in which the actual repair/correction (Jefferson, 1972, 1974) occurs. In the case of Excerpt 1, the place of the correction proper is the syllable ‘SA’ in ‘conSAcre’ (whereas the trouble source was phonemic – i.e. insertion of the phoneme ‘n’ in ‘consancre’). However, the boundaries of minimal units are not predefined. They can be phonemic, syllabic, disyllabic, and multi-syllabic. A correction proper may even be an entire word; and in speech errors, for example, or in replacements, the repair proper may even be a group of words.

To sum up, in this sample, both the speech error and its correction are accompanied by an AU 1+2, whereas the maximal pitch accent can be found on the repair proper. The first facial combination is placed on the cut off. This one is less intense and shorter (below 500 ms). The second brow raise is slightly longer, and more marked, but nonetheless shorter than 500 ms. According to the limit defined in previous literature (Ekman and Friesen, 1969; Yan et al., 2013) to distinguish fully fledged facial movements from micro-facial expression (that are involuntary leaked); both these facial combinations would be involuntary. In this sample then, the speaker contextualises the correction with

---

<sup>4</sup> In the FACS – Facial Action Coding Scheme Methodology, the intensity of facial expressions is scored from A to E, whereby A is the trace of a movement and E is a very marked movement of the muscles in question (see Chapter 3).

a marked – yet it seems allegedly – involuntary full composite cue (i.e. maximal pitch and micro-facial expression) on the unit correction.

In Chapter 4, qualitative microanalysis of different composite repair types in French language is presented. In Chapter 5, qualitative micro-analysis of composite repair types in Italian language is presented. Quantification is provided in Chapter 6 and findings are eventually discussed in Chapter 7.