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# **Gesture catchments and density in narratives of personal experience**

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## **Abstract**

Narrative studies represent a vast fieldwork even if one considers linguistics alone. In discourse analysis, Labov and Waletzky (1967) proposed a framework for the semantic and syntactic analysis of spontaneously produced narratives of personal experience in audio recordings. Labov later developed this first approach in two papers (1997, 2007). In the field of Conversation Analysis, the Goodwins (1982, 1984, 1986, 1992) analyzed the complexity of interaction frameworks in narratives which were video-recorded. They particularly considered participants' body orientation and actions to reveal how tellers managed through the production of their narratives or why they didn't. At the time, they however lacked the technical tools to go further into their analyses: they couldn't, for instance, add a prosodic analysis with fine phonetic detail which could have corroborated their views. Nor did they have video annotation tools, with which it is now so easy to align transcriptions and annotations with the visual signal. This has been made possible only quite recently, and some work has been started on narrative at McNeill's Lab at the University of Chicago. McNeill and colleagues (2001) video-recorded participants retelling the story of a film or cartoon they had watched before. This experimental procedure enabled them to establish links between prosody and discourse as well as between discourse organization and gestures. Namely, they found out that metaphoric gestures showed the structure of the different scenes recounted and that a narrative was given coherence through the use of gesture catchments, e.g. one or several recurring gesture features through the whole narrative.

The aim of the present paper is to extend the studies presented above on spontaneously produced narratives, that is narratives of personal experience produced in a larger speech context (video-recorded conversations, TV shows, etc.). Although the work is based on a larger collection of narratives, for the sake of clarity, one complex narrative will be presented here and it will be shown that intonation units are probably more adapted than syntactic ones to determine the Labovian phases of a spoken narratives and that both modal density (Norris 2004) and gesture catchments adapt to the complexity of a narrative.

## **1 Introduction**

Narrative analysis is a vast field of study – not only in linguistics – which is constantly enriched with the apparition of new technology. In the 1960s, recording devices made it possible to reconsider previous work, adding to the collection of existing studies the analysis of narratives of personal experience in which new emphasis could be given to the oral and visual dimensions of

narratives. Two major series of papers were then written, on the internal structure of narratives by Labov and Waletzky (1967) and later Labov (1997, 2007), and on the occurrence of narratives in larger action-levels by the Goodwin couple (1982, 1984, 1986, 1992). Whereas the first series mentioned focused on the semantic and syntactic structure of narratives, the latter initiated observations on actions and the gestures made by the participants in the video-recordings. Besides, they based their analysis on spontaneously produced narratives which are also the object of this paper.

At the turn of the century, new technology again revived interest in narrative studies as it then became possible to annotate both prosodic and gestural phenomena with extreme precision and make new observations on co-occurring marks. Interesting observations were made on narratives recorded with an experimental procedure by McNeill et al. (2001, among other studies). They described how gestures take part in the structuring of narratives thanks to “gesture catchments”, which will be described below.

The present paper is part of a larger analysis on a collection of narratives of personal experience, and shows how prosody and gestures help understand the structure of a complex narrative, spontaneously produced, and rather than giving general conclusions on several narratives, it will present one narrative in its complexity as an illustration of the type of process involved in the telling, focusing namely on gesture / modal density and gesture catchments.

## **2 Theoretical background**

### **2.1 Discourse Analysis**

This work has been carried out in the theoretical framework in Discourse Analysis proposed by Labov and Waletzky (1967) and Labov (1997, 2007) who analyzed the structure of narratives as being made of non narrative clauses (in syntactic terms) and narrative ones. Non narrative clauses are comments made by the participants which elaborate on or generalize from the narrative but do not recount events of the personal experience itself. For instance, in the narrative given as example in the appendix (section 5) and which will be fully described in the next section, the narrator starts one narrative with “this happened a long time ago” (l.18), which is part of the narrative itself (a narrative orientation clause) and then elaborates with “cos of course recently I’ve just turned a very useful forty” which is a comment or parenthesis (a non narrative clause) made to say that this story would not happen nowadays as the events recounted could only occur in her youth and that she would not behave in such a way now. Non narrative clauses may be produced at any time during the narrative (they may either be uttered spontaneously by the speaker or be triggered by audience feedback as is the case in the example lines 41-45) and do not follow any particular order.

Conversely, narrative clauses are temporally-sequentially ordered and are commonly grouped into the following narrative phases:

- Abstract: A phase which shortly announces the punchline of the narrative. This phase is typically absent from narratives produced in the course of a larger action like a conversation or a TV interview.
- Orientation: A phase in which the teller presents the context of the narrative (time, place, participants...).
- Complication: A sequence of events temporally organized and leading to a climax or a punchline.
- Resolution: According to the type of narrative, it is a phase in which the teller briefly recounts how the problem was solved or what happy conclusion was drawn from the complication phase.
- Evaluation: A phase in which the teller proposes a personal evaluation either of the events in the narrative or of the narrative itself as a genre (funny, sad...).
- Coda: A short phase in which the teller switches from the narrative to the larger action. Few of the narratives examined for this and other studies contain this phase though. The example presented in the appendix does not.

## 2.2 Prosody

As presented in the previous subsection, Labov and Waletzky's work has had a major impact on narrative studies and it will be shown in this paper that the structure they proposed for spoken narratives is still valid today, despite the slight fault in their analysis. Although they worked on spoken narratives, their analysis relies on a syntactic segmentation of speech, which is not what one would think the most appropriate initial segmentation of spontaneous speech which may contain false starts, hesitation marks, repeated items and abandoned constructions. For instance, look at the beginning of line 18 in the example given in the appendix "in fact I may even have to uh", an abandoned clause: this type of clause is often met in spoken narratives, and neither syntax nor semantics help us much in knowing whether this utterance was meant by the teller as the end of the previous evaluation or the beginning of the orientation clause. This is where prosody has something to add since the fundamental frequency ( $f_0$ ) has a different shape in beginnings and in ends of units, as described by Wichmann (2000). There are two types of intonation units (IUs): minor and major ones (Cruttenden 1997). Minor IUs have at least one nuclear stress, have their own prosodic contour, and are grouped into major IUs. This grouping of IUs is called *Paragraph intonation*; in each paragraph, pitch declines progressively from one group to another. Across paragraphs, it is on the contrary reset to mid values. In the example provided in the appendix, each line break in the narrative corresponds to a major unit and may contain several minor units, as in 1.56 "so it was just a great end / to a great night" which constitutes one major unit containing two minor ones, and is congruent with any syntactic analysis one could have made on the script which is not always the case. With this segmentation made, it is then easier to classify each major unit into a narrative phase on semantic criteria. The whole procedure is described in section 3.

## 2.3 Growth points and catchments

Elicited narratives have also been studied, namely by McNeill and colleagues, from the gesture perspective. McNeill (2000) and McNeill & Duncan (2000) have launched a vast series of studies on elicited narratives, in which they show that speech in this context is organized in *Growth Points*. Growth points are idea units, and therefore constitute units which are related to the cognitive process at work on the speaker's part. Growth points, according to the authors, are made visible through the gestural production of speakers, especially thanks to what they call "gesture catchments". A catchment consists of the repetition of one or several recurrent gesture features throughout a growth point. They give examples of different iconic gestures used by the speakers to differentiate between parts of speech (i.e. growth points). Quek (2004) shows in his paper that catchments may be expressed by very fine gesture features, such as holds, symmetry, etc. In the present paper, it will be shown that gesture plane and hand orientation may suffice to constitute a gesture catchment in a narrative where growth points need not be expressed with the same gesture types. Although Labov's analysis of narratives as described above does not quite correspond to McNeill's analysis in terms of growth points, both visions are useful for the understanding of how narratives are structured.

# 3 Methods and materials

This work is following a series of studies (Ferre 2005, 2008) on a collection of French and English narratives of personal experience. They were taken from two types of corpora: video-recordings of freely going dialogues and broadcast TV-shows. The annotation process was slightly different for French and English narratives, namely the annotation of prosody which was adapted for French, and therefore, only the annotation procedure for narratives in English, which will be the focus of this paper, will be presented below. Although only one example will be discussed at length, the other narratives of the collection have been treated in exactly the same fashion.

## 3.1 Sound

Narratives have been transcribed manually in current spelling with Praat, initially segmented into minor IUs following the British tradition of segmentation (Cruttenden 1997). Once this first transcription was made, the algorithm Momel-Intsint (Hirst 2007) was used to automatically

annotate the  $f_0$  target points and  $f_0$  values in the signal. The target points give a stylisation of the curve which is as close as possible to the raw  $f_0$  curve calculated by Praat. After a manual correction of the target points, the mean  $f_0$  was calculated for each minor IU as an approximation of the  $f_0$  slope, and from these values, minor IUs were grouped into major units which constituted the basis for the semantic analysis. At last, nuclear stresses were annotated on a separate tier, and speech rate calculated in number of syllables per minute for each major IU. In personal recordings, intensity was measured and annotated, but not in broadcasted narratives, since we expect it to have been controlled during the recording by sound technicians, who level off any peak in loudness.

Major units, on semantic criteria, were then analyzed into narrative and non narrative clauses, and the narrative clauses grouped into the different phases presented in 2.1. All the phases were entered into a Praat tier.

### 3.2 From sound to gesture

Once the sound had been treated, the resulting Praat tiers were imported into Elan for the annotation of the gestures made by the tellers. Hand gestures were annotated following the typology proposed by McNeill (1992), to which emblems and adaptors (auto-contact gestures) were added. Head movements (nods, shakes, tilts, jerks, etc.) as well as eyebrow movements (raising and frowning) were also transcribed. Having the prosodic, discursive and gesture annotations on a single Elan file enabled the cross-comparison of the various narratives and some characteristics in narrative structure were highlighted; they are now presented in the discussion, which concentrates on the analysis of a complex narrative.

## 4 Discussion and conclusion

The narrative presented in its whole in the appendix is an excerpt from a TV-show, broadcasted by ABC television, in which an Australian comedy actress and writer presents her new book. The two action levels – participating in the TV-show and telling a narrative – are alternatively foregrounded (Norris 2004) in this excerpt thanks to hand gestures which are either related to the narrative (metaphorics, beats, iconics) or to the construction of intersubjectivity as the actress points at the host, the audience or herself.

To concentrate on the narrative itself, it displays a complex semantic structure as it can be analyzed as one main narrative (description of the book content, *drinking stories*) in which a second narrative is embedded (the drinking story which was not inserted in the book). The two narratives are presented as narratives of personal experience, whether it be true or not. Besides this complex super-structure, the second narrative can also be seen as complex since it contains two powerful moments: how the actress got inebriated at a party and what shameful consequence this had on her behaviour. It will be shown below how the two powerful moments are highlighted through gesture amplitude, speech rate and gesture catchments.

### 4.1 Modal density

The notion of modal density (Norris, 2004) has proved particularly valuable in the analysis of this narrative. Although it is used here in a much simpler way than in Norris' analyses, we can see it in two ways: first, at some points in the telling, there is higher gesture density (highlighted parts in the script). By this we mean that the teller produces a hand gesture, as well as a head and eyebrow movement. The two movements can be seen as reinforcing gestures described in Ferré et al. (2007) which give more intensity to some parts of discourse. Now higher gesture density sometimes coincide with prosodic highlighting such as syllable lengthening as in "long time ago" (1.18) were both "long" and "-go" are lengthened and carry nuclear stress. The same happens at 1.25 on the word "laudanum" which is thus made prominent and a key point in the narrative, through which the audience is guided with a succession of high modal density parts. The modal density is even greater in the apex of narrative 1 and apex 2 of narrative 2 with the sudden slackening of speech rate (accompanied with greater sound articulation), and in apex 2, with the larger amplitude of the iconic gesture (a gesture mimicking the throwing away of something, the largest gesture in the whole excerpt). Besides highlighting key moments in the telling, the actress produces hand gestures which reveal the underlying structure of her narrative.

## 4.2 Gesture catchments

The first observation to be made in terms of catchments is the orientation of the gestures made by the actress throughout the narrative, which reveals the underlying structure of the story: during Narrative 1, all the metaphoric gestures are made with hand palms turned upwards and as soon as she starts Narrative 2, the metaphoric gestures are made palms turned downwards, an orientation which switches again at the beginning of the complication phase (1.24: palms upwards). The next change (1.34: palms downwards) occurs immediately after the non narrative proposition (1.33) and again after the non narrative proposition (1.47) to the end of the narrative (palms upwards).

Whereas metaphorics are used by the teller to reveal the different phases of the narrative, the iconic gestures highlight the two powerful moments in Narrative 2 where two different planes are adopted by the teller. Both the metaphoric and the iconic gestures (1.32 & 34) of the first key moment are made with a movement in the horizontal plane whereas the succession of iconics (1.52-53) of the second key moment are made with a movement or gesture orientation in the vertical plane. Although probably unconsciously produced by the teller, the gestures in the two planes coincide with the two moments she highlights in the narrative: first that she had taken substances and thereafter woke up on the floor, and second that she threw her soiled underpants out of the window in a place where they would be visible from all.

## 4.3 Conclusion

As a short conclusion, we may say that both prosody and gesture participate in the structuring of a narrative which is an organized unit of speech even when it is part of a larger action-level as was the case in the example presented in this paper. Whereas pointing and the use of vocatives in speech reveal the larger action (the interview), metaphorics, iconics and prosodic devices such as speech rate, sound lengthening and intonation grouping structure the smaller action (telling a narrative). Inside a complex narrative, key moments are highlighted through gesture density (simultaneous production of several gestures) and modal density (gestures produced at times of prosodic emphasis). Gesture catchments may apply to different levels in the narrative. As seen in the example provided in this paper, one type of catchment (palm orientation) reveals the structure in terms of narrative phases (Labov, op. cit.) whereas the other type of catchment (plane) reveals the two key moments, so that the verbal complexity is mirrored by a gestural one.

## 5 Appendix<sup>1</sup>

- 1 *Host: was there it was # was there any story you thought I can't # I can't put this in here that it seems cos it covers so much and so much personal stuff good and bad*

### NARRATIVE 1

- 5 **orientation:** well there's ONLY one story / that I really WANTED to put in / that I COULDN't / beCAUSE hem: # (281 syll/min)  
**complication:** well BASically / my VErY wonderful editor Sam / SAID uh (347)  
you Mknow the WHOLE thing / with you being fond of a DRINK: (351.5)  
**climax:** B(h) I think that's pretty CLEAR: # (241)  
10 in the BOOK: # (206)  
**resolution:** Myou PRObably don't: need yet / another drinking STORy (290)  
Mso I had to loose one of my FA:vourites # / shall I share it toNIGHT # (266.5){please do please do (laughter)}  
**evaluation:** it's hem well look MId LOVE to / cos it's really one of my most sophisticated TALES: /  
15 TOO: {(laughter)} (324)

### EMBEDDED NARRATIVE 2

**orientation:** [in fact I MAY even have to uh /] Mthis happened a LONG: time aGO: / [uh pcos of course

<sup>1</sup> Transcription conventions: [ ] non narrative clauses; { } feedback from host and/or audience; # silent pause; (h) audible in-breath; (347) speech rate in number of syllables/minute; capital letters: nuclear stress; : perceived syllable lengthening; / minor intonation boundary; XXX inaudible speech; highlighted parts: high gesture density; underline: hand gesture (Metaphoric, Iconic, Beat, Pointing, Adaptor, Emblem).

- REcently / pI've just turned a very useful FORty (291)
- 20 (h) hem pand Roy may I just say to YOU: # / Mwell I don't care what people say FOR:ty B# / is the new  
FOR:ty # (299) {I'm please to hear that I've been worried}  
 XXX WELL: / PEOPle who say anything Melse / are living a LOT] (420)  
 A(h) but oKAY / MSO YEARS ago I'm hem / I'm having a bit of a big DAY / with some BUddies # (318)  
**complication:** AND: / then one of them's Mgoing HEY # / BI know a PARty / we can GO to (321)  
 25 and take some LAU:danum / [(h) Mwhich was of COURSE / an Opiate based drug: (217)  
 from MAny years ago: / Mat LEAST / you'd have LEARNED: children] (246.5)  
 so (+ laughter) MI've gone SURE: / so we've gone to this PARty / MI've TAken the stuff (257)  
 it wasn't LAUdanum / it was like someone had popped MNEUrofen / into a bottle of BAI:leys (369.6)  
 MI don't know WHAT it was / {you were right at the end?} Mbut I've given it a CRACK / reGARDless  
 30 (312)  
 (h) uh (+ laughter) then I'd gone OFF / this isn't DOing anything for Mme / and I've done the senseful  
 maTURE thing Mthen / and drank half a bottle of BOUR:bon (296.7) {(laughter) mhmh}  
 [no I am a REAL model #] (255)  
 AND / {(laughter)} the NEXT morning / I've Woken up / on the FLOOR of this PLACE (290.5)  
 35 FORtunately at least next to the people I had come with (358)  
 Mand AROY / that's when I realized / that I needed a toilet very QUICKly # (285) {mhmh}  
 AND / uh well basically I FOUND a toilet (291)  
 and I was pretty BUSy / from both ENDS: (250) {(laughter)}  
**climax 1:** and it SEEMS a way (+ laughter) / pesSEntially Roy / I've THROWN up / on my own  
 40 underPANTS (203) {(laughter)}  
 [NOW / YEAH (+ clapping and laughter) it's # {(laughter) 'kay okay}  
 AAND you know (220)  
 pCOME with me # / come WITH me # (224.5) {I'm I'm drugged I want to wake up now # but at the  
 same time not want to (+ laughter)}  
 45 Mdon't well # (117) {yeah yeah}}  
**complication:** WELL: / Mhem NOW / cos the REAL problem was / that I Mwas at a COMPLETE  
stranger's HOUSE: / and I'm THINKing this (300) {at your house it would have been okay}  
 [Moh that's XX {(laughter)}}  
 why I thought this story is no ICE-breaker (264)  
 50 pHI / WE haven't met / BUT / (h) puh so I didn't know what Mto DO / and I thought / I did the most  
 sensible thing I COULD do: (274)  
**climax 2:** I # TOOK the underpants off: / and THREW them out the window (242) {(laughter)}  
**resolution:** but it was just a bit of a SHAME / that I didn't realize / that the window FACED / the  
FRONT: of the HOUSE: (325) {(laughter)}  
 55 and we actually ALL walked PAST: them / as we LEFT {(laughter)} (224)  
**evaluation:** so it was Bjust a GREAT: end / to a GREAT: night: # (206)

#### BACK TO NARRATIVE 1

Host: XX # I look forward to chapter one of the next book already

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