Timing in the performance of jokes

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Abstract

The notion of timing in humor is often mentioned as a very significant issue, and yet very little has been written about it. The paper reviews the scant literature on the subject and narrows down the definition of timing as comprising pauses and speech rate. The discussions of timing in the literature see it either as a speeding up or slowing down of speech rate. Using data collected from twenty joke performances, we show that speakers do not significantly raise or lower their speech rate at and around the punch line. The other common assumption is that punch lines are preceded by pauses. Our data shows no evidence supporting this claim nor does it show differences concerning these parameters in jokes that involved punch lines in reported speech and those that did not. Similarly, we found no differences between prepared and spontaneous jokes. Therefore, our data leads us to conclude that the theory of timing in joke performance is in serious need of further research.

Keywords: joke performance; pauses; punch line; reported speech; speech rate; timing.

1. Introduction

This paper begins to investigate the much neglected area of timing.[1] There has been a widespread consensus that timing is one of the least studied topics in humor research, while at the same time there have been many claims that, in humor, "timing is everything."

– "The pacing of the delivery of a joke has a strong impact on its comic effect" (Wikipedia, accessed 6–18–2006).

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- "The only thing that's certain about comic timing is that it's essential to being funny" (Dean 2000: 125).
- "In comedy, as in life, timing is everything" (Klages 1992: 13).
- "For the professional comic, the timing within the structure of the joke is of crucial importance" (Macks 2003: 25).
- "Successful comedy and appropriate audience response are determined chiefly by use of timing" (Goodridge 1999: 48).

Let us consider a few definitions, chosen more or less randomly and with no claim of exhaustiveness.

> Timing is knowing when to stop speaking in the midst of a routine in order to allow thinking time for the audience to prepare itself for the laugh that is coming up. (King and Lauger 1972; quoted in Dean 2000: 125)

> Timing can make the difference between a joke that is extremely effective and one that flops. Usually, timing relates to the delivery of the punch line. Jack Benny was a master at timing when he delivered his punch lines. Timing is concerned with the amount of time delay between the end of the setup of the joke and the delivery of a punch line. Too short a time and the impact is lessened by the abrupt end of the joke. (Audrieth 1998)

> Ajaye (2002: 20) advises would-be performers to "light the fuse" of their joke by "taking a pause before you deliver the punch line."

> Comic timing happens in the moment, in the feedback loop between [the comedian] and each individual audience. (Dean 2000: 127)

> Gielgud (1981; quoted in Goodridge 1999: 48) speaks of pauses and silences, and Goodridge (1999: 48) quotes examples as long as 30 seconds.

> The first and most common technique for building emotion is also the simplest—pausing just before the payoff word. This pause is called a pregnant pause because it promises to deliver. (Helitzer and Shatz 2005: 55)

> "[T]he pause before the surprise word effectively builds tension" (Helitzer and Shatz 2005: 175)

The first thing one notices is that the definitions of timing vary radically, which is a good indication that we are approaching a complex and multifaceted topic. This, in fact, may be a folk-concept that results from the conflation of several independent phenomena. From these definitions, it is clear that there is a meaning of "timing" in comedy performance which is limited to pauses before the punch line of the joke. Another meaning is closer to the distribution of the material in the text throughout: "In any context, the buildup of rhythm to a climax is structured through the use of timing" (Goodridge 1999: 48). An even broader definition is to be found in Norrick (2001):

> [T]iming is a composite buildup of hesitations, false starts, repetitions and formulaicity in the build-up along with a more rapid, fluid delivery of the punch-line, often involving a switch in perspective and usually highlighted by a shift in voice quality. (Norrick 2001: 260–61)

From the above discussion, we can then isolate the following definitions of "timing":

- timing as distribution of pauses
- timing as distribution of the elements of the text (what Goodridge 1999 calls "rhythm")
- timing as interaction with other speakers

The present focus of our research is on pauses and rate of speech, which cover much of the definitions mentioned above, with the exception of the interactional ones. Also, we will not consider paralinguistic markers such as smiling voice and laughter. We should stress that, for the purposes of this paper, when we speak of "timing" in the performance of humorous narratives we mean only the distribution of pauses before the punch line and the rate of speech. Other aspects of the prosody of humor performance are discussed in Pickering et al. (2009).

2. Folk-theory of timing

As we said above, there does not exist — at the time of writing and to the best of our knowledge — a thorough treatment of humorous timing. Timing is a part of the theory (or of the description) of the performance of humor. Here we need to distinguish between performance in the theatrical sense (as in "perform on stage") and performance as the opposite of "competence" (in the Chomskian opposition, modeled on but not exactly homomorphous with Saussure's *langue|parole* opposition). In fact, the whole field of the linguistic performance of humor is vastly under-explored. There are some exceptions: on the one hand, there have been calls for the development of a theory of performance (Carrell 1997; Attardo 2002), and on the other hand, work in conversation analysis can be seen as dealing with performance, albeit from a different theoretical standpoint. This is not the place for a synthesis of the work on conversation analysis of humor (see Norrick 1993, Attardo 1994, and Glenn 2003 for reviews). Instead, we will briefly review works that touch upon the issue of timing in relation to punch lines.

Norrick's (2001) discussion is focused on timing. However, as we saw, his definition encompasses more than our present focus. From the present point of view, Norrick makes a clear prediction that punch lines should be produced with a faster rate of speech "more rapid [. . .] delivery" (Norrick 2001: 260).

Bauman (1986) analyzes oral narratives in which they describe practical jokes (as opposed to telling jokes directly). His corpus consists of three narratives by one speaker and four anecdotes told twice (at a distance of several years) by another speaker. In other words, his analyses are based overall on seven texts, with two versions of four of them told by two different speakers. Bauman describes humorous narratives as follows: "an element of suspense is introduced into the narrative, as the audience is presented with a bit of curious information, but a full explanation of its implication is withheld" (1986: 39). Bauman also refers to "differential information states," i.e., the audience and some of the characters in the text do not have access to all the information that the narrator has access to (1986: 37). The significance of Bauman's description of his humorous narratives lies in the fact that it is homomorphous to the standard descriptions in humor research of the organization of jokes in setup and punch line (cf. Attardo 1997 for discussion).

Bauman notes, "In all cases, the narrated event concludes with a dialogic exchange culminating in the quoted speech of the punch line" (1986: 64). In reported speech, according to Bauman, there is a need to mark "the difference between the voice of the narrator in the present story telling context and the reported speech of the actors in the original event being reported" (1986: 66). Bauman reports that several of the dialogic punch lines are "rendered in a markedly higher pitch, more loudly, and in a more clipped manner" than the "surrounding discourse" (1986: 68).

Bauman follows the Labovian approach to story structure (Labov and Waletzky 1967: 60) which distinguishes more than two parts to a story, but then notes that all the other parts of the narrative "will in turn setup the concluding punch line." For Bauman, "the punch line is the critical element, the point of the story" (Bauman 1986: 73), and it occurs in reported speech (e.g., Bauman 1986: 54–55, 59, 64). It should be stressed that Bauman's punch lines are very similar to the understanding of the punch line in humor research. Bauman's punch lines are closer to the "pointe" or "climax" of a story.

He reports that "dialogic punch lines are rendered in quoted speech which was *often set off by pauses* [our emphasis LP and SA] and could sometimes involve altered voices with higher pitch, louder volume, and other paralinguistic features" (Bauman 1986: 66). Given the extremely restricted nature of his corpus, it is possible that the pitch and volume variations reported may be due

to the fact that the punch lines occur in reported speech, which is marked by higher pitch and higher volume (see e.g., Klewitz and Couper-Kuhlen 1999), among other markers. We address this issue below.

Wennerstrom (2001: 205) notes that several studies report that "exaggerated volume and pitch" mark those elements of a narrative that are "particularly important." Her remarks are not (directly) about jokes. However, one can argue that punch lines are by definition the most important part of a joke. Wennerstrom (2001: 210) provides more examples of high pitch in quotations but discusses also an example in Eggins and Slade (1997: 211), which includes similarly reported speech and an "increase in volume." "Shifts in rhythm" are also found in association with "dramatic points" (Wennerstrom 1997: 211). It is significant that a shift in rhythm may involve speeding up or slowing down.

Chafe (1994), describing non-humorous narratives, characterizes the "climax" of a story, i.e., the part of the narrative in which "the unexpected event was revealed," thus:

> A climax is usually presented with bells and whistles [. . .] the words *fell over* [the climax], were spoken with heightened amplitude and pitch, as well as a lengthening of the initial consonant of *fell*. [. . .] there was further reinforcement through repetition with a different wording. (Chafe 1994: 131)

Chafe, Wennerstrom, and Bauman all describe the prosodic correlates of the climax of a story. This is known in German research as the "pointe" (Wenzel 1989; Müller 2003a; 2003b). Punch lines can be seen as being the climaxes of humorous stories. However, climaxes are not necessarily punch lines. The difference, as discussed in Attardo (2001: 42–44), is that a punch line requires — besides the sudden, unexpected, final re-orientation of the text — an oppositional semantic component (Raskin's 1985 script opposition). To put it differently, climaxes and pointes share with punch lines their surprising, unexpected, salient, finality, but punch lines are also incongruous.

To summarize, we find that punch lines should not be that different, prosodically speaking, from focal points or climaxes of non-humorous stories, since both in humorous punch lines and in non-humorous climaxes we should have emphasis expressed by exaggerated or higher pitch and volume. Incongruity seems not to have prosodic correlates at the narrative level. There is some evidence that punch lines should be delivered with altered rhythm (faster or slower) and could be set apart by pauses.

Finally, Gussenhoven (1986) reports "comedy effects" in a British sitcom. These are tied to Halliday's [-focus] marking of material that is unexpected,

but is incongruously treated as expected and conversely to material that would not normally be marked as [+focus], meaning the same thing as "new," but are instead de-focused. Interestingly, he quotes "conventionalized [-focus] uses, such as "THAT's for sure!" (Gussenhoven 1986: 119). From this fact, we can deduce that speakers are obviously aware at some level of focality marking, particularly using prominence as indicated by volume and pitch, and that — as is the case for all humorous violations of linguistic rules — speakers are quite capable of deliberately producing utterances that violate the expectations for a given context. The significance of this observation lies, of course, in the fact that if speakers are aware of focus to the point of manipulating it for humorous purposes, they may well do so to mark punch lines within jokes.

We can thus summarize the first part of the discussion of prosodic timing of humor with the following hypotheses:

– There is a pause before the punch line.
– Punch lines are delivered faster (Norrick 2001), more clipped (Bauman 1986), and "with bells and whistles" (Chafe 1994) than non-punch lines.
– There is a shift in voice quality (pitch) and volume at the punch line (these aspects are not pursued in this paper).

We needed to operationalize these hypotheses in ways that would be testable by prosodic means. For example, speakers pause in speech from time to time, in order to breathe. These articulatory pauses are very short and usually go unnoticed. It is clear that what the theory of prosodic timing means is that punch lines should be preceded by not only *noticeable* but also *significant* pauses. Brown et al. (1980) proposed a taxonomy of pauses, summarized below:

Very short pauses	0.2 to 0.4 seconds
Short pauses	0.4 to 0.6 seconds
Substantial pauses	0.6 to 0.8 seconds
Topic pauses	Greater than 0.8 seconds

As we have seen, the literature on timing claims that the pauses used in humor may go up to 30 seconds. We decided more reasonably to assume that punch lines would be signaled by substantial pauses or longer. Similarly, faster delivery can be operationalized as faster rate of speech measured in syllables per second.

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3. Data

The data comprises a set of recordings collected independently of this project, by Dr. Jodi Eisterhold (Georgia State University; see Pickering et al. 2009).[2] We analyzed a corpus of ten speakers performing two texts each. The students performed a joke (referred to as "the engineer joke", shown in Appendix 1), which we provided for them in writing. Additionally, they were told to prepare another joke of their choosing. After they had performed the two prepared jokes, they were asked, without prior warning, to perform an additional joke. No student had any difficulty in producing a joke extemporaneously (However, this should not be construed as indicative of particular skills on the students' part, because they were given ample amounts of time to produce the joke). In this study, we analyze the engineer joke and the spontaneous joke, because we were interested in comparing the prepared and spontaneous jokes. Further studies will analyze the rest of the data.

An interesting issue, raised by both referees, is whether the skill level of the students as joke tellers might have been a factor. This is obviously a significant consideration, and we are planning a study contrasting professional comedians and amateurs for the near future. In the present study, we used randomly selected students who possessed no particular skills or experience in joke telling. It is the view of the authors that the performance of the subjects represented average joke tellers, i.e., our subjects were neither better not worse than an average speaker at telling jokes. We tested this assumption by asking two independent judges to evaluate, using a Lickert scale, the quality of the performance of the speakers. The conclusion of the judges supported our hypothesis: the performances were found to be average (see Pickering et al. 2009).

Data were subject to instrumental analysis using the pitch extraction function of a Kaypentax Computerized Speech Laboratory (CSL). While instrumental, as opposed to auditory analysis, provides an accurate record of objective acoustic measurements, it also constrained the number of recordings that we could use in regards to sound quality; many of the recordings simply contained too much ambient noise to constitute reliable data for instrumental analysis. We chose the ten students for analysis exclusively on this basis.

For each humorous narrative, we measured the rate of speech, pauses, pitch, and volume and observed voice quality characteristics. It is important to note that significant variation exists among individuals; therefore, we measured prosodic differences between the punch line and the setup of the same joke to ensure that no inter-individual variation affected our results. A sample joke performance is given below followed by a description of our procedures.

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Ok one day an engineer was WALKing across the road and he sees a FROG
And:
The FROG says
If you KISS me I'll turn into a PRINcess
Well the engineer keeps going on and uh (0.48)
beautiful princess says if you KISS me (0.24)
I'll STAY with you for a week (0.12) and I'll do whatever you want me to do

So what's the PROBlem
And the engineer TAKES it out of his pocket
And he looks at it and he says (0.47)
I'm an engiNEER (0.38)
I don't have TIME for a beautiful princess (0.48)
But a talking FROG that's cool

SPS : Rate a: 28 syllables/5.39 seconds = 5.19 syllables per second
AR : Rate a : 28 syllables/4.55 seconds = 6.15 syllables per second

SPS : Rate b: 23 syllabes/5.39 seconds = 4.26 syllables per second
AR : Rate b: 23 syllables/4.06 seconds = 5.66 syllables per second

The punch line for the joke is shown in italics. Punch lines were identified using the standard Hockett (1973; 1977) method, as amended by Attardo (1994), and using semantic analysis. In a nutshell, the analyst starts removing phrases from the end of the text and checks whether the humorous effect is still present. When the humorous effect is no longer present, this is a strong clue that the last phrase removed was the punch line. Semantic analysis then confirms this test.

Prominent syllables appear in caps. Pause lengths (given in parentheses) were calculated instrumentally using the CSL. A baseline speech rate was established by calculating the rate of an earlier section of the narrative (underlined) comparable to the punch line in terms of length and prominent syllables.[3] The speech rate of the punch line (italicized) was also calculated by dividing the total time of this section of the narrative by the number of syllables. It should be noted that since the punch line, in a strict sense, was too short to produce a reliable speech rate measurement ("That's cool" is a mere two syllables long); we calculated the rate of speech of a portion of text preceding it. In addition to speech rate as ascertained by syllables per second, we also calculated the articulation rate of the baseline and punch line; that is, the total time of each section minus pause time divided by the number of syllables. It is important to note that since individual speakers' voices vary significantly, for example women tend to have higher pitch than men, we always compared baseline and punch line measurements of the same speaker.

4. Results

A full discussion of the results, especially from a statistical point of view, can be found in Pickering et al. (2009). This discussion addresses only those measurements relevant to timing, as defined above. In all charts, the odd numbered examples are the frog jokes and the even numbered examples the spontaneous ones.

4.1. *Speech Rate*

Speech rates reported for adults speaking English measured by syllables per second typically range from 3.47–5.7 syllables depending on speaking condition (Munro and Derwing 1994; Pickering and Levis 2002). Rates for specific genres have been identified across languages. In a meta-analysis of studies focusing on two genres (interviews and story-telling) in five languages (English, Finnish, French, German and Spanish), Kowal et al. (1983: 386)

Table 1. *Rates of speech in the texts*

Sample #	Setup	Punch line
1	4.41	4.34
2	4.21	6.31
3	5.45	5.18
4	3.37	5.00
5	4.17	6.00
6	3.76	5.51
7	3.95	3.66
8	3.44	3.07
9	4.42	2.91
10	3.53	5.18
11	5.14	3.18
12	8.90	5.71
13	3.79	3.33
14	3.59	2.00
15	4.10	2.58
16	3.67	3.81
17	4.09	5.38
18	3.33	3.44
19	3.91	6.11
20	4.07	2.03
Mean	4.26	4.23

found an average speech rate in story telling of 3.43 (syl/sec), and of 4.31 in interviews.

Table 1 presents the results for speech rate as calculated in syllables per second. From these results, it is apparent that speakers tend to deliver the punch line of the joke at a rate that is neither significantly slower nor faster than the setup in both types of jokes. On average, the punch lines were slightly slower, but the difference was not significant. Interestingly, our data show speech rates close to the figures found by Kowal et al. (1983) for interviews, rather than for narratives. It should be noted that in this particular measure we returned to the data, as suggested by the referees, and calculated mean rates across the entire texts, not just in the samples described above. In the other measures reported in this paper, there were no significant differences between the results arrived at with our sampling method and the results considering the entire text. The articulation rate (i.e., speech rate, minus the pauses) showed a mean articulation rate slightly higher for the punch lines (5.9 vs. 6.6). However, this difference was not statistically significant.

4.2. *Pauses*

We first tested to see whether longer pauses typically occur before the punch lines. The results for pauses are summarized in Table 2. The mean length of the pauses in the setup was longer than the mean length of the pauses before the punch lines by 0.094 seconds, but this result was not statistically significant. However, since the hypothesis predicts that the pause before the punch line should be longer than the average in the setup, we conclude that the hypothesis has been falsified.

As we saw, the kind of configuration predicted by the common hypotheses about joke performance would predict that they should present a pause immediately before the punch line, as in the example below (Sample 9) where a short pause (i.e., a pause of greater than 0.4 seconds) appears immediately before the punch line (the punch line is italicized):

(0.21) but a talking frog
(0.55) *That's cool*.

However, only one sample presented the configuration above (Example 8 in Table 3, found below), if we take the punch line to be the entire clause "I'm all for it." More generally, very few substantive pauses appear in our data at or

Table 2. *Mean length of pauses in the texts*

Sample #	Setup	Punch line
1	0.41	0.17
2	0.34	0.18
3	0.34	0.52
4	0.44	0.45
5	0.49	0.14
6	0.43	0.18
7	0.74	1.00
8	0.48	0.65
9	0.53	0.38
10	0.51	0.37
11	0.41	0.23
12	0.27	0.44
13	0.67	0.59
14	0.63	0.59
15	0.51	0.14
16	0.57	0.23
17	0.70	0.10
18	0.78	1.25
19	0.47	0.47
20	0.55	0.31
Mean	0.51	0.42

around the punch line. As can be seen from Table 3, there are only two pauses equal to or longer than one second, and none of these occurs immediately before the punch line. In Sample 18, a pause of 1.25 seconds occurs prior to the final sentence.

(1.25) the blond guy looked at them and was like I don't pack my wife's *lunch*

The punch line is the NP *lunch,* which occurs significantly after the pause. In Sample 7*,* a pause of one second occurred prior to the final sentence in which the punch line occurs. However in this case, the speaker appeared confused and hesitant (having perhaps forgotten the joke), hence the 2.5 second pause followed by a filled pause and another .85 second pause. In fact, he incurs in an error ("frogging" for "talking") immediately after the pause, as can be seen by the relevant passage transcript:

says (2.5)
um (.85)
I don't have time for a girlfriend (1.0)
Now a frogging, a talking frog, now *that's cool*

Table 3. *Pauses in the Setup and in the Intonational Phrase Containing the Punch Line (italicized).*

#	Transcription of the punch line intonational phrase(s)
1	(0.16)/but now a frog that talks/(0.18)/*That's really cool*/
2	(0.18)/I thought you said drinks were *on the house*/
3	(0.52)/but I do have time for a talking frog *that's pretty cool*/
4	(0.45)/and so God goes alright do you want that bridge to be *two lanes or four*/
5	(0.14)/but a talking frog now that's *a whole 'nother thing*/
6	(0.18)/and the priest says that's a good idea but do you think we have *time*/
7	(1.0)/now a frogging a talking frog now *that's cool*/
8	(0.65)/*I'm all for it*/
9	(0.21)/but a talking frog/(0.55)/*That's cool*/
10	(0.37)/so the elephant picks it up and wipes its ass *with it*/
11	(0.23)/a talking frog now *that's cool*/
12	(0.44)/my fri- my friend is on his knees swearing to help prevent *forest fires*/
13	(0.59)/but a talking frog now *that's cool*/
14	(0.59)/shut up, you're *next*/
15	0.17)/but a frog that talks/(0.12)/now *that's cool*/
16	(0.23)/and when he went soaring over the edge he yelled *shit[hh]*/
17	/a talking frog/(0.10)/now *that's interesting*/
18	(1.25)/the blond guy looked at them and was like I don't pack my wife's *lunch*/
19	(0.47)/I like the fact that you're just a talking frog and *that's cool*/
20	(0.31)/he went to *your house* (hhh)/

From the observation of the transcriptions in Table 3, it is fairly obvious that the hypothesis of a substantial pause (greater than 6 seconds) systematically delimiting punch lines is to be rejected.

4.3. *Reported speech*

Reported speech has previously been connected to the production of a faster rate in punch lines (see above) as compared to punch lines that do not contain reported speech. Due to the nature of our data (i.e., the engineer joke has a punch line that occurs in reported speech) and the random nature of the selection of the improvised jokes, we only have two jokes in our corpus in which the punch line does not occur in reported speech. Since most of our samples consist of reported speech punch lines and we found that the punch lines in our corpus have lower rate of speech overall, clearly the hypothesis that punch lines are delivered at a faster rate is not supported by our results.

To investigate this further, we contrasted the two jokes in which the punch line does not occur in reported speech, with those in which it does. We tested whether there was a difference between the rates of the punch lines, but we found that the two-tailed Mann-Whitney test concluded in favor of no difference between the groups (p-value = 0.5333). At this time, we therefore cannot support the hypothesis that reported speech makes a significant difference in terms of rate. However, given the very restricted part of the sample to which it is applicable, this conclusion should be taken as tentative.

4.4. *Errors in the performance of jokes*

An interesting issue for which not enough data have been collected, but where our data can suggest some interesting points, is the high frequency of serious performance errors in the performances of the jokes. We have already seen Sample 7 above, where the speaker hesitates for 2.5 seconds overall, clearly at a loss for words, and follows up with what was probably going to be a spoonerism ("frogging [tog]" for "talking frog") but self-corrects half way through. While the performance fiasco of Sample 7 may appear particularly egregious, in fact we find several other cases of performance errors in our data, such as the following, from a sample not used in our data:

The FROG I mean uh, the engiNEER took the frog OUT of his pocket

Errors, in fact, can completely destroy the joke. Witness the following example, not used in our analysis, where the old Polish joke about the contractor who keeps yelling "green side up" to the Polish crew laying sod in the yard is adapted to blondes, and the teller ends the joke as follows: "Well, I'm a landscaper too, and across the way I have three blondes laying mulch" where the substitution "mulch" for "sod" completely destroys the joke.[4]

The most obvious conclusion that the high number of performance errors entails is that speakers work from, and hearers reconstruct, idealized "competence jokes." Furthermore, we can conclude that the speakers are tolerant of the performance errors of the tellers. It is clear that in the cases in which the speaker self-corrects (Sample 7 and the frog/engineer substitution) that he/she is working from some representation of how the joke text should be, and he/she corrects performance errors to approximate that model. An interesting issue would be to test whether joke performances are richer in these errors than other

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sorts of texts, and whether closeness to the punch line affects these sort of errors.[5]

4.5. *Summary of the results*

In conclusion, we reached the following results:

- Punch lines are not produced at a different rate of speech than the baseline.
- The hypothesis that punch lines are preceded by an emphatic pause is rejected. Very few punch lines were preceded by a noticeable pause at all.
- Reported speech appears to have no effect on the rate of speech of the punch lines (This result relies on a much smaller sample than the others).
- There appears to be no significant difference in any of the above features in relation to the prepared joke and the improvised joke.

5. Discussion

It seems fairly obvious that our results have a certain significance for the study of prosodic timing and therefore the performance of humor (both in the technical linguistic sense and in the theatrical sense). We also have strong evidence that the folk-theory of pausological marking of punch lines is false. As for speed and ease of delivery, we find that punch lines are not delivered at a different rate than the setup.

Another interesting finding, methodologically speaking, is the lack of significant differences between improvised and rehearsed jokes. The result, which held across all of our categories, is very interesting, since it allows researchers interested in investigating timing to assign jokes to speakers which contain a given variable of interest, rather than having to rely on them occurring randomly.

A potential objection to our results is that as we saw above, our subjects were college students, hence untrained in the performance of humor. We intend to investigate, in further research, whether the findings reported in this paper are also true of trained professional humor performers. Preliminary results (Urios-Aparisi and Wagner 2007) indicate that this is true also of professional performers. If this is the case, it would appear that the folk theory of humor performance is simply wrong. It would become an interesting puzzle then to discover how the folk-theory arose, that is why professional comedians are told to do something that turns out not to be done by speakers spontaneously.

Another potential objection is that the elicitation conditions (The speaker was alone while performing for the camera and the operator.) were non-ecological and therefore result in distorted data. We doubt that this is the case, simply because in many cases the camera operator laughed at the joke (thus contaminating the data; we had to discard those cases), which seems to attest to the fact that the speakers were in a fairly normal situation. Regardless, further research on dyadic joke telling sessions is being planned to address this specific objection.

Finally, one could wonder how these findings relate to non-narrative humor (i.e., humor that does not rely on a narrative to occur, for example occurring in non-narrative conversational exchanges). Further research is necessary to investigate what characteristics non-narrative conversational humor has from the point of view of prosodic timing.

6. Postscript

This paper was written in 2007 and revised according to two sets of very helpful comments from referees. Since then we started the process of expanding our study to conversational humor, in an article (Attardo et al. 2011) that appeared in a special issue of *Pragmatics and Cognition* dedicated to humor and prosody and in other ongoing projects. In December of 2010, we were made aware of a paper by a group of Greek scholars (Archakis et al. 2010) that presents some very interesting results which go roughly against the conclusions we presented in Pickering et al. 2009, Attardo et al. 2011 and in the present paper. Rather than rewriting the entire paper to take into account this new contribution, we decided to leave the present paper unaltered and to address our colleagues' findings in another paper, which is in preparation.

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Appendix

An engineer was crossing a road one day when a frog called out to him and said, "If you kiss me, I'll turn into a beautiful princess".

He bent over, picked up the frog and put it in his pocket. The frog spoke up again and said, "If you kiss me and turn me back into a beautiful princess, I will stay with you for one week."

The engineer took the frog out of his pocket, smiled at it and returned it to the pocket. The frog then cried out, "If you kiss me and turn me back into a princess, I'll stay with you and do ANYTHING you want."

Again the engineer took the frog out, smiled at it and put it back into his pocket. Finally, the frog asked, "What is the matter? I've told you I'm a beautiful princess, that I'll stay with you for a week and do anything you want. Why won't you kiss me?"

The engineer said, "Look I'm an engineer. I don't have time for a girlfriend, but a talking frog, now *that's cool*."

Notes

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1. For all the references that discuss the importance of timing, the literature in humor research is virtually non-existent (we discuss the few exceptions in the text). We were able to locate only two references in Rutter's bibliography (1997), and none in Nilsen's (1993), where "timing" does not appear in the index. Neither of the two references is relevant to the topic at hand.
2. We would also like to acknowledge the help of Dr. Marcella Corduas (University of Naples, Federico II) for the statistical analyses, and of Brenna Seifried (Georgia State University) and of Alyson Eggleston (Purdue University) for the transcription of the samples and the prosodic analysis.
3. In Pickering et al. 2009, we use the entire text of the joke, rather than a sample. No significant differences emerged when we used the entire text, as opposed to a sample to establish the baseline. XXX
4. Here's a version of the joke:
   A painting contractor was speaking with a woman about her job.
   In the first room, she said she would like a pale blue.
   The contractor wrote this down and went to the window, opened it, and yelled out "green side up!"
   In the second room, she told the painter she would like it painted in a soft yellow.
   He wrote this on his pad, walked to the window, opened it, and yelled "green side up!"
   The lady was somewhat curious, but she said nothing.
   In the third room, she said she would like it painted a warm rose color.
   The painter wrote this down, walked to the window, opened it and yelled, "green side up!"
   The lady then asked him, "Why do you keep yelling 'green side up'?"
   "I'm sorry," came the reply. "But I have a crew of blondes laying sod across the street."
   (http://forums.mobiledia.com/topic36129-0-asc-270.html; accessed Jan 7, 2007)
5. Giovannantonio Forabosco (p.c.) reports that a schizophrenic patient he observed liked to tell jokes but often incurred in severe performance problems right at the punch line.

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