

# Adults' fluent speech profile: a discussion of data collection and disfluencies transcriptions

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## Problem statement

Fluency, by definition, refers to the continuous and smooth flow of speech production (Starkweather e Givens-Ackerman, 1997). However, it is known that speech is marked by interruptions, disfluencies. The types of disfluencies have been studied by several important authors in the field (Bloodstein, 1987; Van Riper, 1973; Curlee, 1981; Riley, 1981; Conture, 1987; Campbell e Hill, 1994; among others) both as therapeutic and diagnostic tool for the analysis of speech fluency disorders.

We are left with the question "is there a speech fluency profile of "normal" and how would be this profile". Thus, some aspects of speech should be considered, such as data collection, the types of disfluencies and their transcription. The present study has as purpose to describe the methodology of data collection in order to study the profile of fluent speech of adults as well as discuss ways of transcribing the disfluencies.

## Review of current literature

In Brazil, studies began in the late 80 on the initiative and coordination of professor Claudia Andrade. This research group studied the fluency of Brazilian Portuguese speakers from 2:0 to 99:0 years old (Zackiewicz e Andrade, 2000; Andrade e Juste, 2001; Andrade, 2004b; Andrade, 2006; Martins, 2007; Andrade e Martins, 2007; Martins e Andrade, 2008; Andrade e Martins, 2010). From these studies some conclusions could be drawn: the fluency varies throughout life, the fluency is variable in the same individual and between individuals, the standard of fluency does not appear to be influenced by sex or education level, despite the stuttering is more prevalent and incident in males; fluent speakers, regardless of age, do not break the speech in more than 10%, when the disruption is the use of speech disfluencies of stutterers, such value does not exceed 2%, the type of instrument used to collect speech affects equally

stutterers and fluent speakers. However, we analyzed only the speech of individuals in the greater Sao Paulo, making it necessary to expand to other regions of the country.

Celeste (2010) studied the speech of stutterers and fluent adult considering three analyzes the speed of speech: speech rate (number of syllables divided by the total time of speech), articulation rate (number of syllables divided by the total time of articulation) with and without disfluencies. When the ruptures were not excluded from the speech to calculate the speed, the results indicated that people who stutter present speech rate lower than fluent adults. The same results were not found when the disfluencies were excluded from the sample. Apparently this method of speech rate analysis seems to be more accurate when the objective is the calculation of articulatory speed.

## Methodology

In this study, 400 fluent adults with the dialect of Minas Gerais will participate. They will be divided by groups with 100 adults (in each group) by age: 29:11 to 18:0, 30:0 to 39:11, 40:0 to 49:11, 50:0 to 59:11. The sample size presented here is higher than that of previous studies, since they found a high variability within groups. In the study there will be no distinction, a priori, of race and sex, since the influence of such elements has not been proven in previous studies on speech fluency.

Inclusion criteria: a) signing an informed consent; b) Lack of personal history and / or family history of stuttering; c) No complaint of neurological, psychiatric illness and / or communication difficulties; d) failure to carry out speech therapy and / or psychological previous e) not be bilingual.

To obtain and analyze samples of self-expressive speech is adopted the methodology proposed by Andrade (2000, 2004b). The speech samples are self-expressive literally transcribed in its entirety (fluent and disfluent syllables), to the lifting of speech disruptions (common disfluencies: hesitation, interjection, revision, unfinished words, word, segment and utterance repetition; stuttered disfluencies: syllable repetition and sound prolongation, block, break and intrusion of sound and segment).

It will be considered for analysis the following variables of speech fluency: types of breaks (total common disfluencies and stuttering) speech rate (with and without disfluencies) and the overall rate of rupture (percentage of speech discontinuity). Throughout the development of this research, we intend to discuss the classification of disfluencies and consequently its pattern of transcription.

To ensure the reliability of data, transcripts and analysis will be submitted to the analysis of agreement between judges. For this, 10% of the sample will be submitted at least two transcriptions and analysis by two team members, considering at least 90% agreement.

To collect and analyze data, and resources referred to, will require a computer that contains a text editor, access the web to search and update of the theoretical and statistical analysis software. The data will be submitted to descriptive and inferential statistical analysis with significance level of 5%.

## Results

To date, samples were collected from 63 adults fluent speech and a preliminary analysis was performed (Table 1).

	Common disfluency	Stuttered disfluency	Words/m	Syl/min	discontinuity speech
Mean	6,18	1,43	110,63	212,41	3,52
SD	4,48	1,61	28,69	45,54	2,23
CL 95%	5,05 – 7,30	1,02 – 1,84	103,40 – 117,85	200,94 – 223,88	2,95– 4,08
R. Mean	15,26	2,47	113,21	224,24	8,87
p	<0,001*	<0,001*	0,478	0,043*	<0,001*

SD: satandar deviation

R Mean: refference mean

Syl: syllables

Preliminary results (sample of 64 speakers) showed that the values of common and stuttered disfluencies, the number of syllables per minute and percentage of speech discontinuity differ significantly from the reference values currently found in the national literature (Martins e Andrade, 2008). It is noteworthy that the three parameters

mentioned above, all have lower than average values found in speakers of São Paulo. From these results, it is clear that this study must continue, but with two considerations: it is necessary to increase the universe of the sample and, given the complexity of transcription of disfluencies, the study should discuss its process and its patterning. The aim is also to determine the variations of speech rate in the presence / absence of disfluencies.

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