

# Change in Women's Uptalk Scaling Depending on Conversational Context

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## Introduction

"Uptalk" is a term that refers to the use of rising intonation at the end of a declarative utterance. This phenomenon is also sometimes called "high rising terminal."

Although uptalk is used frequently in conversation by people of all genders, there is significant evidence that women use uptalk more than men. Guy & Horvath (1986) found that in Australian English, the women in their study used uptalk in over twice as many instances as the men in their study. Similarly, Ritchart & Arvaniti (2014) found that in their study, uptalk comprised 42% of women's utterances and 20% of men's utterances. They also found that women employ more extreme pitch contours than men. In this study, I investigated if women's pitch contours of uptalk change depending on conversational urgency.

**My hypothesis was that the scaling (difference between the F0 at the beginning of the rise and the F0 at the highest point) would be greater in stressful interactive conversations where turn-taking and floor holding are more urgently necessary than in calm interactions and non-interactive speech.**

## Participants

- 25 woman-identifying participants
- Native speakers of English
- Between the ages of 18-22 years
- Recruited from the Claremont Colleges

There are three experimental groups: high urgency, medium urgency, and low urgency (referred to as H, M, and L going forward). The L group contained 9 participants, the M group contained 8 participants, and the H group contained 8 participants.

## Procedure

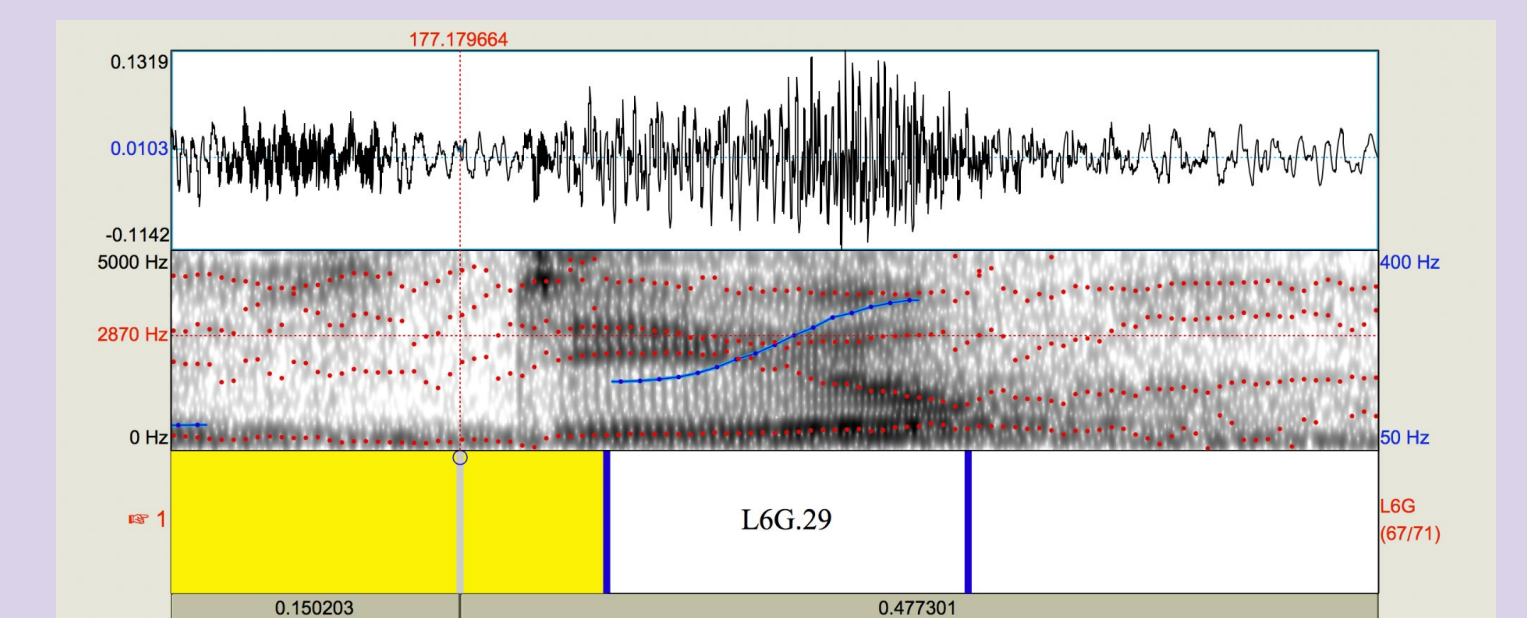
The independent variable in this study is the level of urgency, and the dependent variable is the degree of pitch rise. The H group participated in pairs, and they completed a speech task which involved back and forth speech, turn taking, and expressing opinions about a fictional scenario. The M group participated as individuals, and they spoke to an interlocutor (who only responded with backchanneling) and described their opinion on the same fictional scenario. The L group also participated as individuals, and they expressed their opinions on the scenario alone in a room. All speech was recorded for later analysis.

These groups were designed to create different levels of conversational urgency and different need for the discourse functions of uptalk (floor holding and confirmation requests). My hypothesis predicted that the H group would have higher uptalk scaling as they had the most need for uptalk due to the urgency of their conversation, followed by the M group and then the L group.

## Analysis and Results

Each instance of uptalk was segmented and the scaling was calculated. The scaling is the F0 (Hz) at the highest point in the rise minus the F0 (Hz) at the start of the rise.

The scaling values for each group were tested for significance using a one-way ANOVA test, a non-parametric test, and post-hoc Tukey HSD tests.



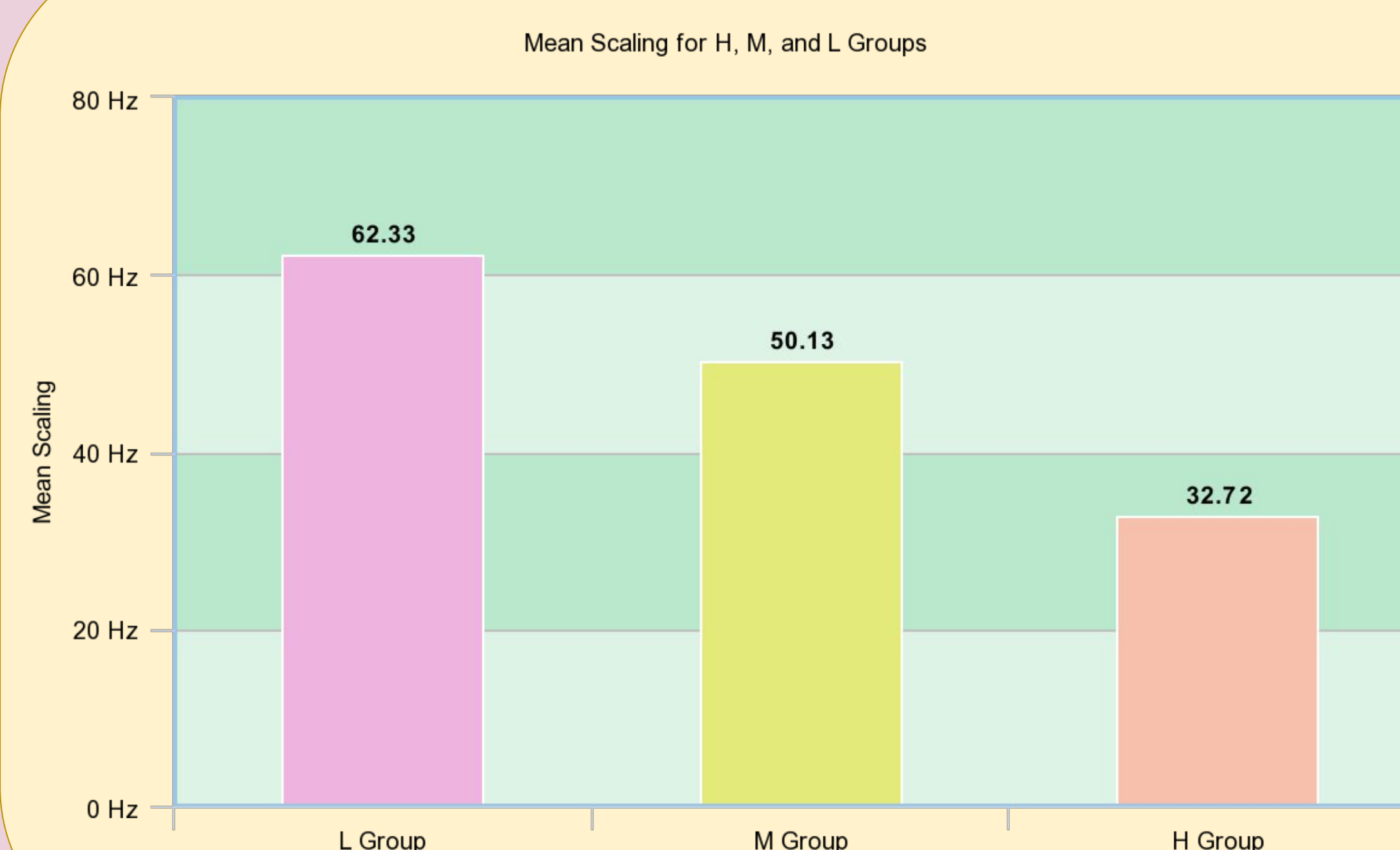
A segmented pitch rise on the word "due"

	Sum of Squares	df	Mean Square	F	Significance (p-value)
Between Groups	55365.324	2	27682.662	24.583	1.7529E-10

Results of the 1-way ANOVA test, which were confirmed with a non-parametric test

(I) Group	(J) Group	Mean Difference (I-J) (Hz)	Std. Error	Significance (p-value)
L Group	M Group	17.20	5.19	0.003
L Group	H Group	34.61	4.95	5.1691E-7
M Group	L Group	-17.20	5.19	0.003
M Group	H Group	17.41	5.54	0.005
H Group	L Group	-34.61	4.95	5.1691E-7
H Group	M Group	-17.41	5.54	0.005

Results of the post-hoc tests



	Num. Tokens	Mean Scaling (Hz)	Standard Deviation (Hz)
L Group	108	62.33	38.53
M Group	68	50.13	34.23
H Group	80	32.72	24.54
Total	256	51.94	36.53

Mean scaling and standard deviation values

	Num. Participants	Total Instances of Uptalk	Avg. Instances Per Participant
L Group	9	144	16
M Group	8	93	11.625
H Group	8	126	15.75
Total	25	363	14.52

Average instances of uptalk per participant

## Discussion

The one-way ANOVA test shows a significant difference in scaling, and the post-hoc Tukey HSD tests show there is a significant difference in scaling between all three groups. From the results of the statistical tests and the above chart, we see that the L group employed more extreme pitch contours (had the highest mean scaling), the H group employed the least extreme pitch contours, and the M group landed in the middle. **This is the opposite result of my initial hypothesis.**

Ritchart & Arvaniti (2014) found that uptalked phrases that served as confirmation requests bore the most extreme scaling as compared to floor holding, questions, and other unspecified statements (Ritchart & Arvaniti, 333). Though floor holding statements still had considerably large scaling means, the means were smaller than those for the confirmation request statements. This could potentially help explain the results of this present study, as one could argue that the main discourse function of uptalk in the H group was floor holding as the pairs were engaging in back and forth conversation and were in disagreement with one another. On the other hand, the L group did not have any need to hold the floor, but still felt the need to use uptalk for the purpose of confirmation requests as they subconsciously knew that someone would be listening to their recording later. With no one to offer backchanneling in response to their requests, maybe this encouraged the L group to employ even more extreme pitch contours to compensate for the lack of confirmation.

Further research would be necessary to fully discover the explanation behind the results of this project. **But this study successfully examined whether uptalk scaling also changes depending on conversational context, and the results have suggested that it certainly does.** This study contributes to the existing research on uptalk, pitch scaling, and women's speech, and created new questions about conversational context and uptalk that could be addressed by further research.

## Acknowledgements

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## References

- Guy, G., Horvath, B., Vonwiller, J., Daisley, E., & Rogers, I. (1986). An intonational change in progress in Australian English. *Language in Society*, 15(1), 23-51. <https://doi.org/10.1017/S0047404500011635>
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