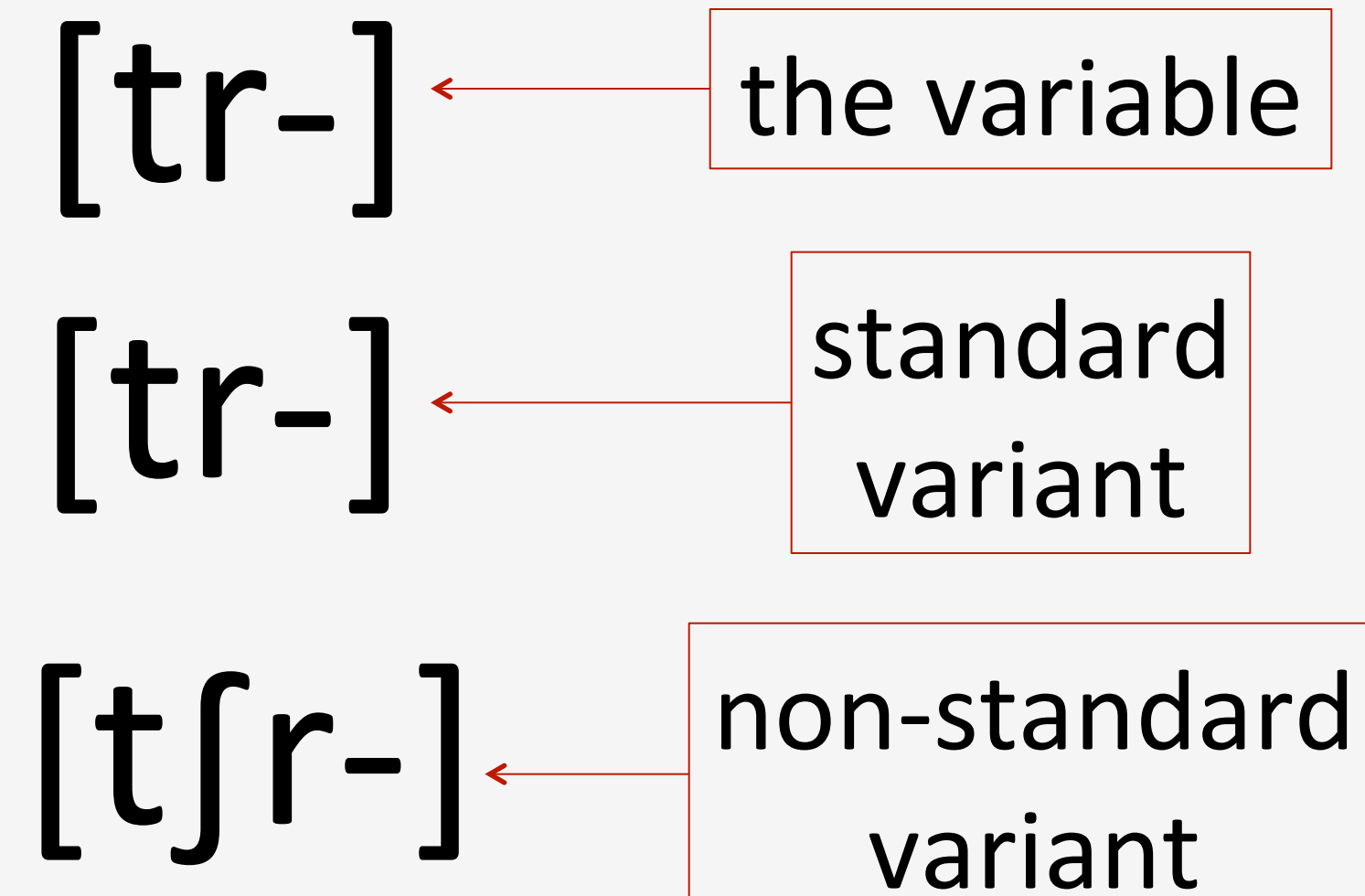


# Social Factors Affecting /tr/ Affrication

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## The Variable

Previous studies indicate a presence of affrication in word initial /str/ clusters to /tʃr/. The purpose of this study was to investigate a related phenomenon and to determine whether affrication is present in word initial /tr/ clusters (in words such as *true*, *trick* and *trap*) and whether it is affected by social factors such as age, gender, geographic region and stylistic register.



## Phonetic Processes

**Affrication** is a phonetic process whereby a stop consonant (eg. p, t, k, b, d, g) morphs into an affricate (a stop-fricative sequence, where the stopped consonant is followed by continued turbulent airflow). Affrication occurs due to the inability of articulators to reach their targets in the time allotted and is therefore more common in fast speech.

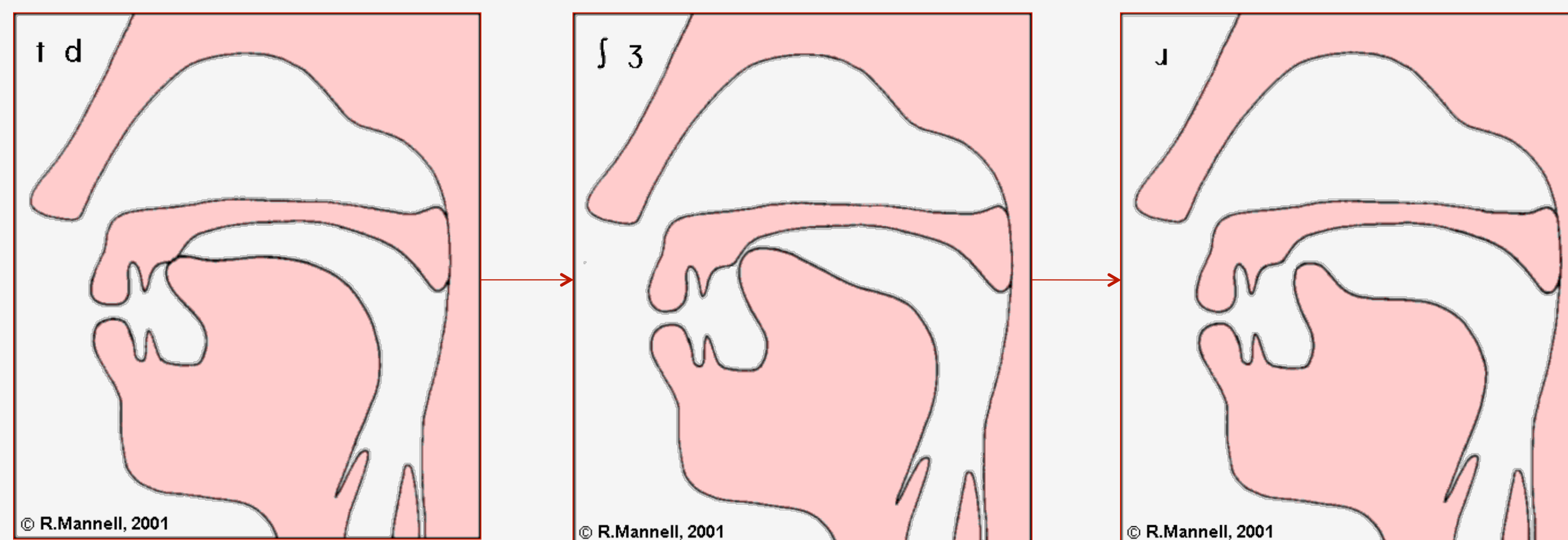
This makes “trick” sounds something like “chrick”.

[t]: tip of tongue is at the alveolar ridge, rest of tongue is lowered

[r]: tip of tongue lowered while back of tongue raises to touch roof of mouth (bunched) OR tip of tongue curled over itself (retroflex)

When a speaker tries to move quickly from the [t] to the [r], the retraction of the tongue and the continuation of the air flow can cause a [ʃ] sound to emerge.

[ʃ]: tip of tongue is further back, the sides of the tongue touch the upper teeth



## acknowledgements

This research project was carried out in the course of the LING 520: Sociolinguistics 2 class and via consultation with Professor Charles Boberg.

## Method

**Participants:** The participants were 18-21 year old college educated students. To obtain reasonable generalization about the effect of social factors, the participants were chosen based on gender and geographical provenance.

	Western Canada	Eastern Canada
Males	5	5
Females	5	5

A background questionnaire was administered to gather socioeconomic, linguistics, educational and attitudinal information from the participants.

Sociolinguistic interviews were conducted with each participant to gather the necessary speech data. A sociolinguistic interview has 4 components:

1) Casual Conversation

“...  
Interviewer: 200 dollars for textbook?! That’s insane!  
Participant: Yea, but I managed to track it down on Amazon for like 50 bucks ...  
...”

2) Reading Passage

“... He knew his mates were hanging out by the train tracks.  
Darn Billy and his tricks, he thought. Coulda been nabbed by the cops and then where would we be? ...”

3) Word List

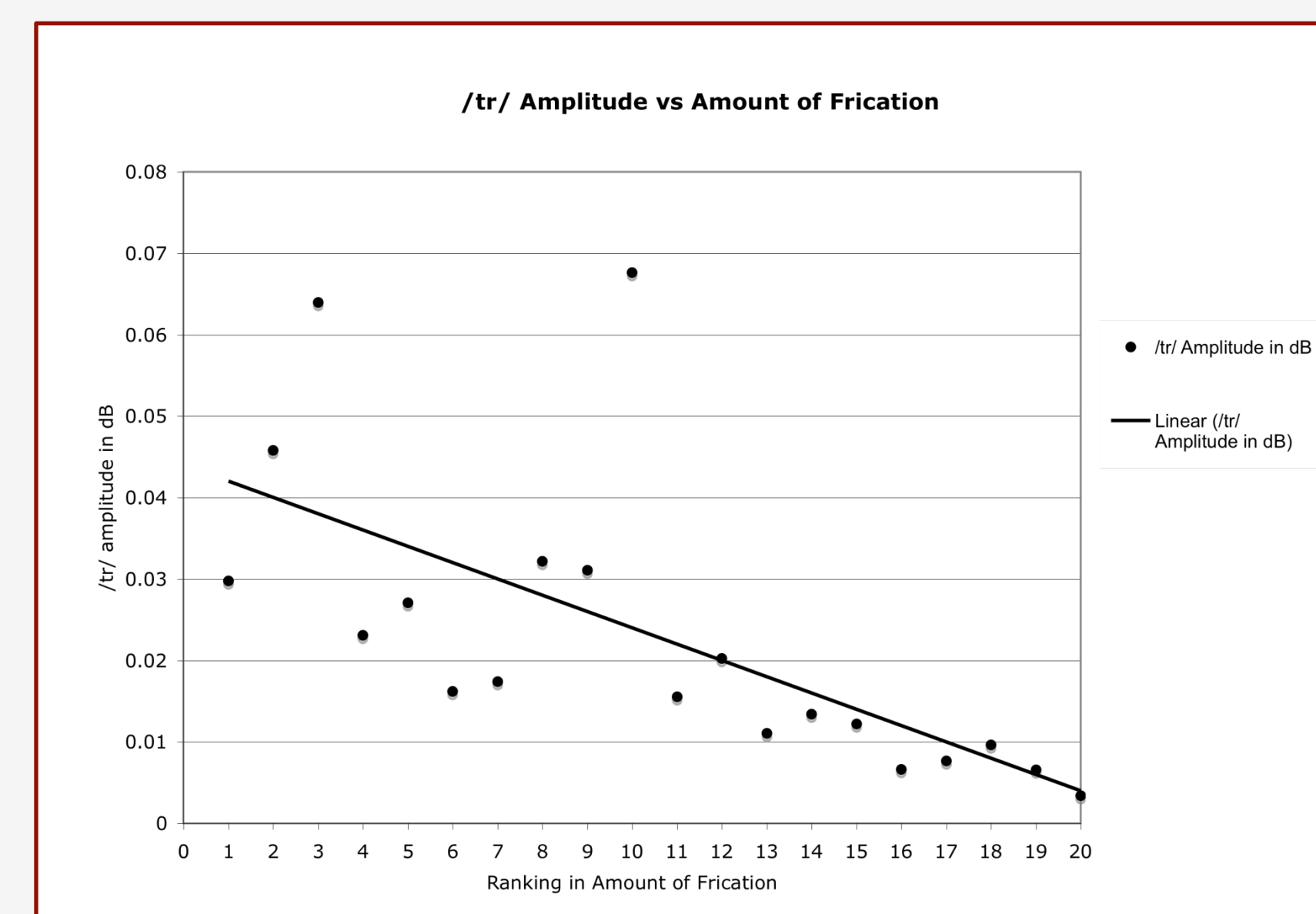
1) Trap, 2) Can, 3) Drain, 4) Bat, 5) True

4) Minimal Triplets

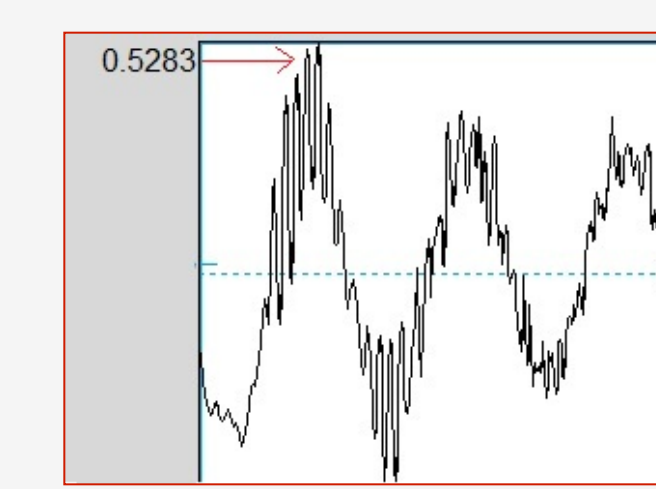
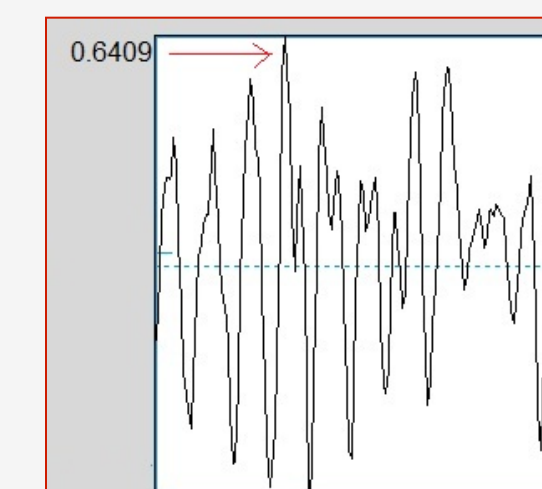
tick [tɪk]      trick [trɪk]      chick [tʃɪk]

These 4 components of the sociolinguistic interview elicit speech of different levels of formality, which is well known to affect the kinds of variants a speaker uses. How a variable is affected by the level of formality is a good indication of whether it is in stable variation or whether it is undergoing a change.

The speech samples were analyzed in Praat (Boersma and Weenik, 2011) and ranked by 3 independent judges in the amount of affrication and correlated to various acoustic features.



The burst amplitude of the /tr/ cluster was used as a measure of affrication.

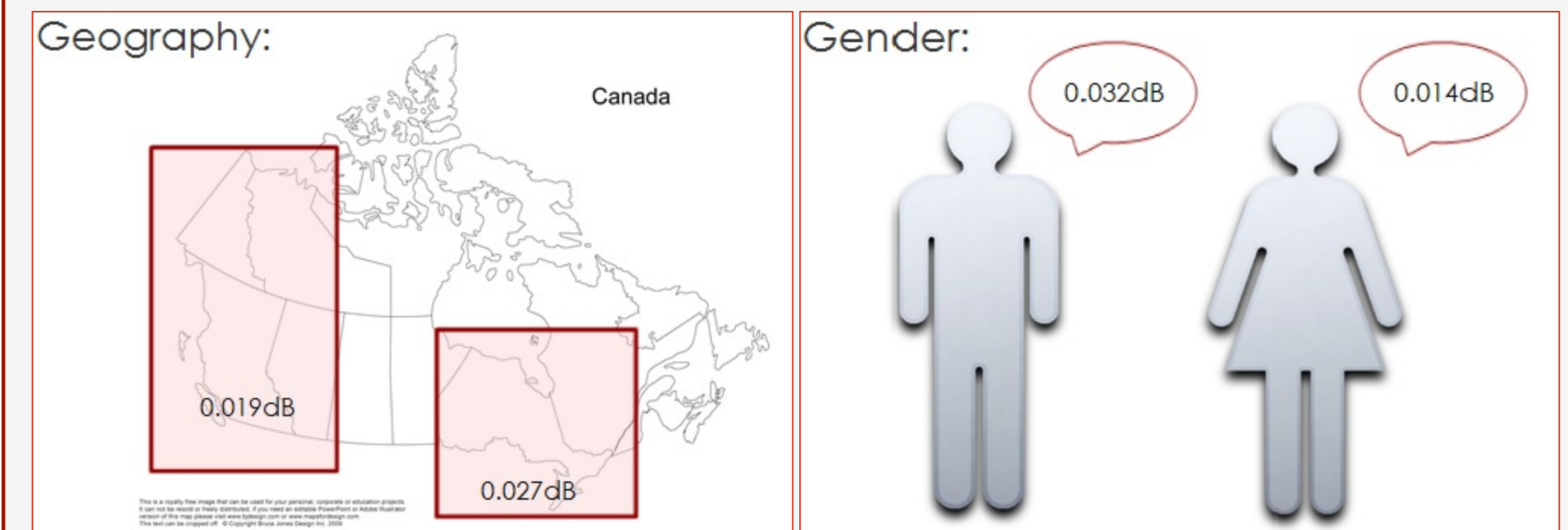


affricated /tr/

non-affricated /tr/

## Results

The **GREATER** the amplitude of the /tr/ burst (in dB), the **GREATER** the affrication, as shown in the use of the non-standard [tʃr-] variant.



People in Eastern Canada affricate more.

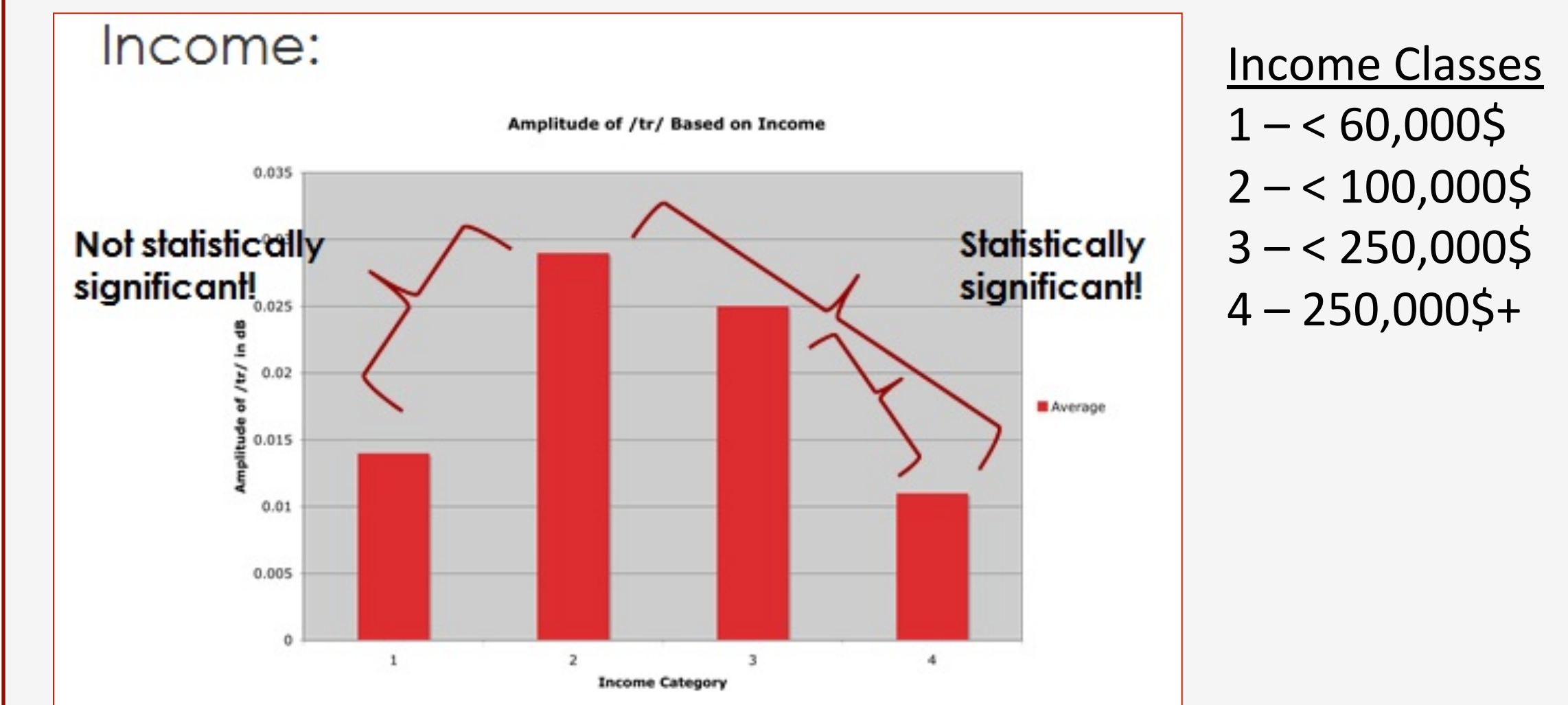
Men affricate more than women.

In general, males use more of the non-standard variant of a variable in **stable variation**, which has been confirmed by this study.

Geography and Gender:

	East	West	Average
Female	0.012 dB	0.016 dB	0.014 dB
Male	0.039 dB	0.021 dB	0.032 dB
Average	0.027 dB	0.019 dB	

The results indicated that **males from Eastern Canada** affricated most of all. This may indicate that /tr/ affrication is a marker of identity for Eastern Canadians.



The results showed that people in higher income classes used *less* of the *non-standard variant*, and, discounting data that was not statistically significant, there was a **linear** pattern in the use of affrication, supporting the hypothesis of **stable variation**.

And finally, in a self-evaluation, the participants were asked whether they thought they produced the non-standard [tʃr]:

Yes (4)	No (11)
0.018 dB	0.028 dB

Surprisingly, those who affricated the most were completely unaware that they were doing so!