

# Obstruents and Masculinity: Shapes, names, and physiology

Christopher Kish, Sarah Korostoff, and Melanie Pangilinan, Supervised by Aaron Braver and Professor Shigeto Kawahara  
Cornell Undergraduate Linguistics Colloquium  
April 21<sup>th</sup>, 2012

## INTRODUCTION & HYPOTHESIS

In spite of Saussure's (1916) notion of the arbitrariness of language, many other researchers propose some degree of sound symbolism. (Köhler 1947, Ramachandran & Hubbard 2001, Berlin 2006) This project aims to find a link between sounds and shapes, and to show that there can be a subconscious symbolism behind some sounds. We extend this link further, to propose a connection between sounds and perceptions of gender.

**Experiment I:** Replicating previous studies, we affirm the link between sounds and shapes, and show that obstruents are more likely to be associated with angular shapes than sonorants.

**Experiment II:** We show that obstruents are more likely to be associated with masculinity than sonorants.

We argue that there is a tripartite relationship between obstruents, angular shapes, and masculinity, and that this relationship is linked to the cultural stereotype of masculine physiology.

**Obstruents:** consonants formed with a tight constriction in the oral cavity. Airflow is obstructed. They produce aperiodic noise, which is acoustically angular.

Ex: p, t, k

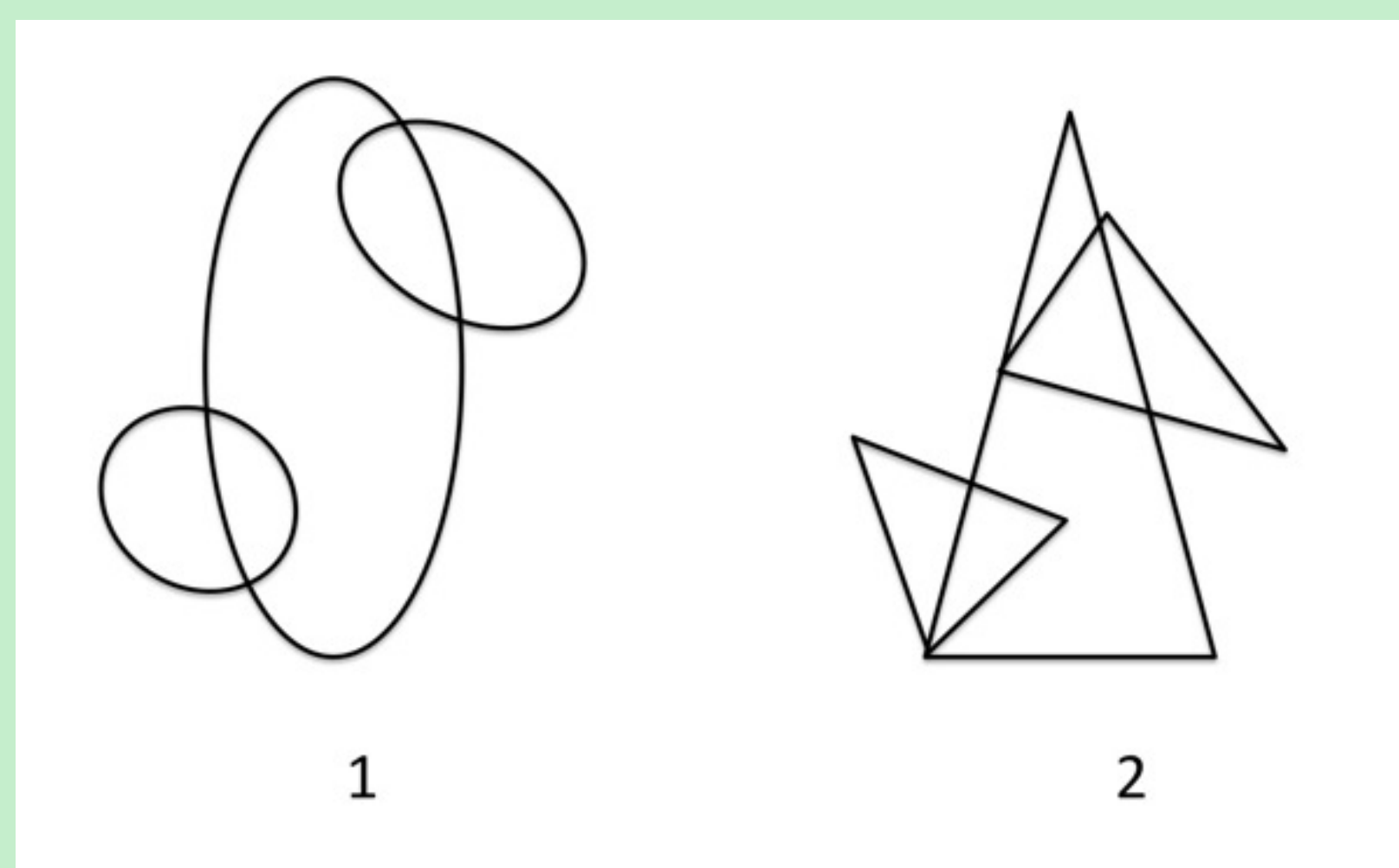
**Sonorants:** consonants formed without a tight constriction in the oral cavity (to the extent that spontaneous voicing is possible). They produce periodic noise, which is acoustically round.

Ex: l, r

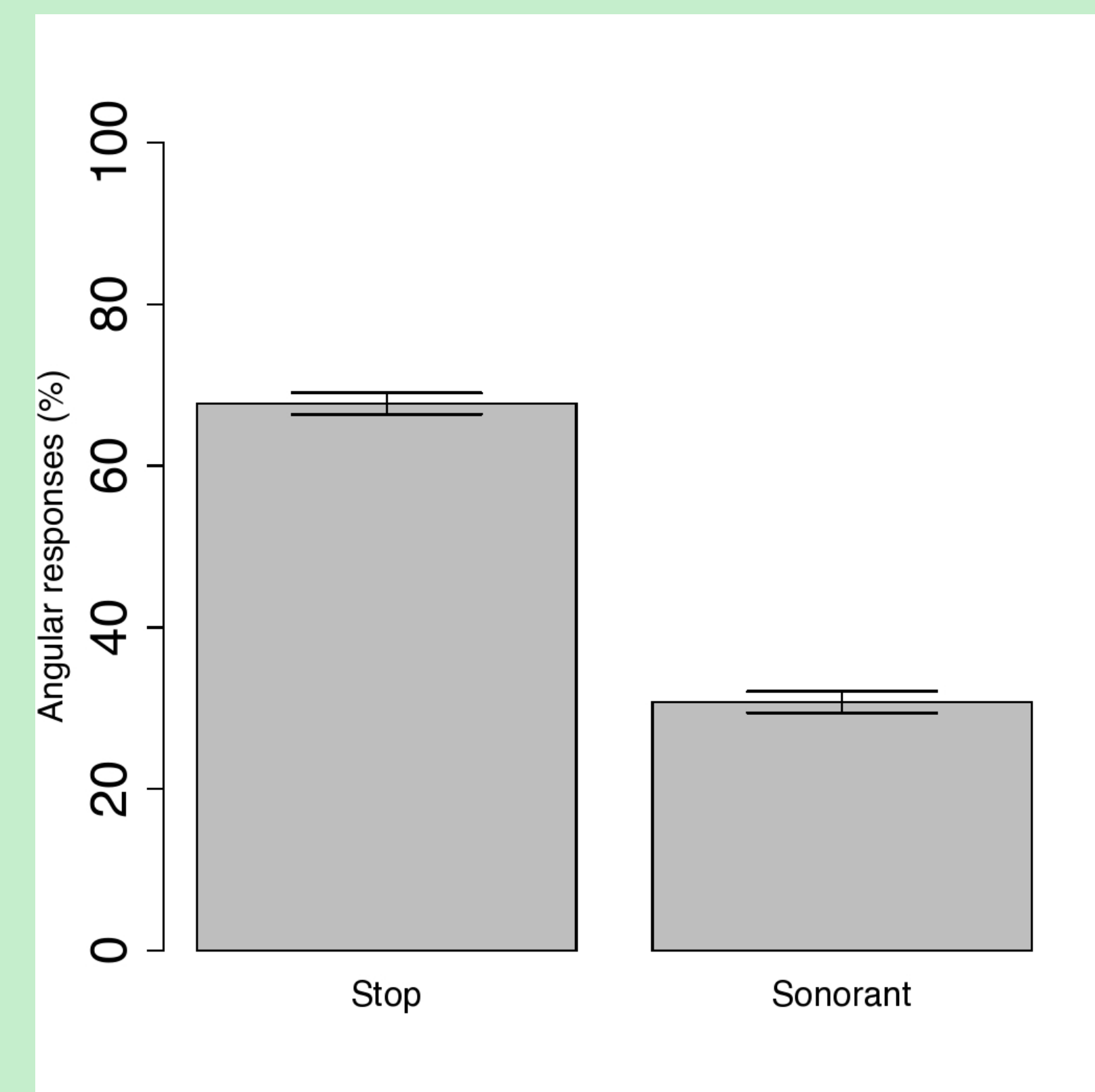
**Sound Symbolism:** the idea that phonemes themselves can hold some basic unit of meaning.

## EXPERIMENT I: Shape Association

Listeners were presented with an audio file of 80 nonce words, half containing obstruents and half sonorants. Each of these was presented alongside a pair of shapes (one of which was round, the other angular) like the ones below. Subjects were asked to indicate which shape best matched the sound they had heard.



## RESULTS AND DISCUSSION I



In Experiment I participants tended to associate the obstruent words with the angular shapes, and the sonorant words with the rounded ones. ( $z=34.03$ ,  $p<.001$ )

## EXPERIMENT II: Gender Association

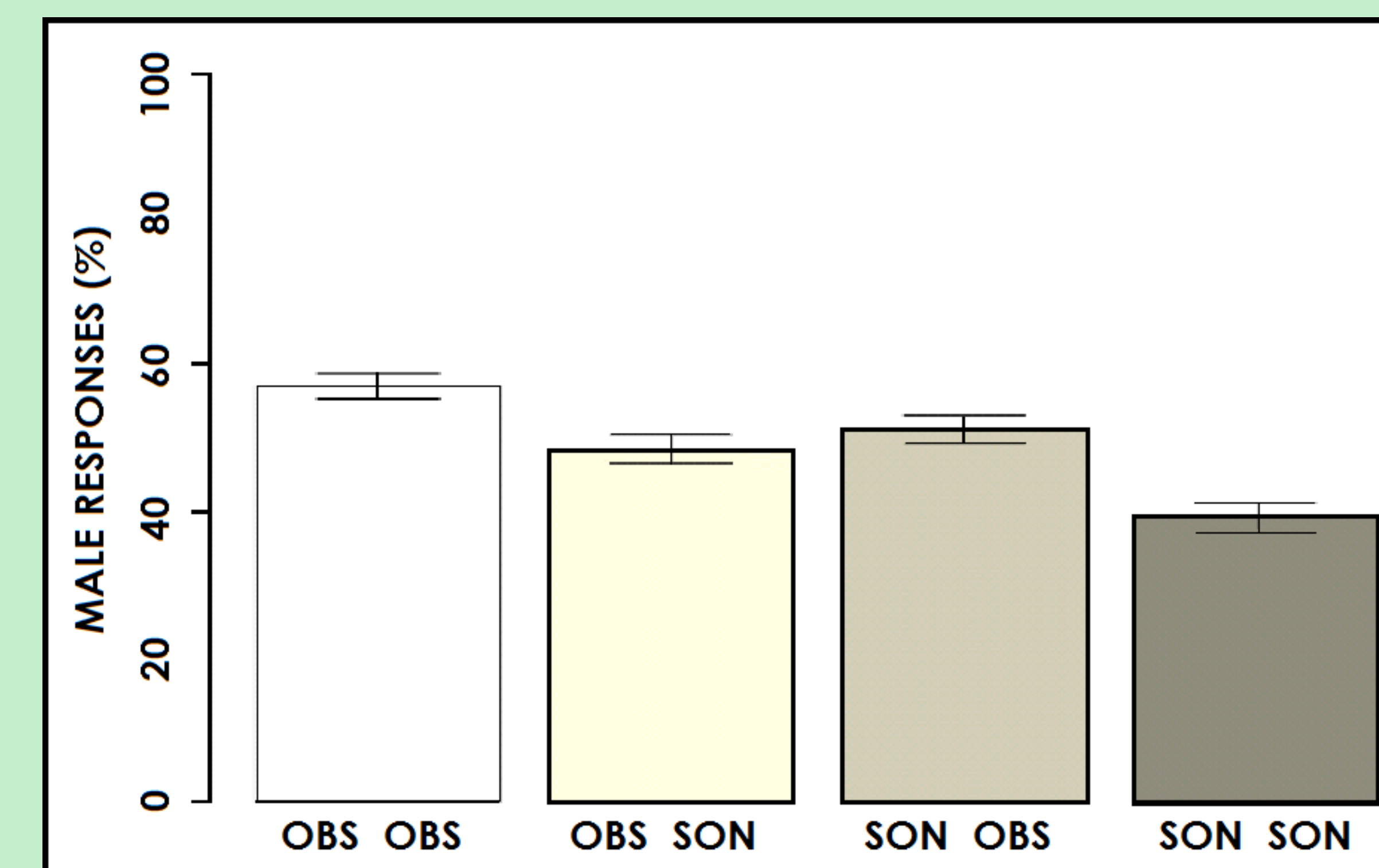
Listeners were presented with sounds and asked to decide whether each one was more likely to be a male name, or female name. The audio files consisted of disyllabic nonce words following CVCV order and were separated into 4 conditions:

→ **Obstruent-Obstruent** (bakə) → **Obstruent-Sonorant** (gawi)  
→ **Sonorant-Obstruent** (migi) → **Sonorant-Sonorant** (ralə)

V1: [a, e, ɪ, o, u] V2: [ə, i].

Stimuli were recorded from one male and one female native English speaker, and re-synthesized to have uniform f0 contours and amplitude

## RESULTS AND DISCUSSION II



Participants in Experiment II were more likely to associate stimuli with obstruent conditions as more male than those with sonorant conditions. (Obstruents in initial syllable:  $z=4.45$ ,  $p<.001$ , in second syllable:  $z=6.15$ ,  $p<.001$ ).

## CONCLUSION

There is a connection between both obstruents and angular shapes, and obstruents and masculinity. Taking these results together, we propose that the link between obstruents and masculinity is related to the cultural perception of angular masculinity. In other words, obstruents may be associated with masculine names, (a) because they are also associated with abstract angular shapes (Experiment I) and (b) because they are acoustically angular. In turn, obstruents are associated with the stereotypically angular cultural depictions of masculine physiology.

## REFERENCES

Cassidy, Kimberly Wright, Michael H. Kelly, and Lee'at J. Sharoni. 1999. Inferring gender from name phonology. *Journal of Experimental Psychology: General* 128: 362–381.  
Cutler, Anne, James McQueen, and Ken Robinson. 1990. Elizabeth and John: Sound patterns of men's and women's names. *Journal of Linguistics* 26: 471–482.  
Ramachandran, V.S. And Hubbard, E.M. (2001) Synaesthesia – A window into perception, thought, and language. *Journal of Consciousness Studies*, 8, No. 12, pp.3-34.  
Saussure, Ferdinand de. 1916/1972. *Course in general linguistics*. Peru, Illinois: Open Court Publishing Company.  
Slater, Anne Saxon, and Saul Feinman. 1985. Gender and the phonology of North American first names. *Sex Roles* 13: 429–440

## FURTHER RESEARCH

This research may be further explored to find sound-symbolic relationships between sounds and attractiveness, emotions, and other attributes.



RUTGERS