

Gender perception varies with consonant sonority in Urdu nonce names

Hassan Khan, Yoonjung Kang, & Dave Kush

University of Toronto

Background Gendered sound symbolism is a phenomenon where certain sounds serve as cues for gender, with some sound-gender associations appearing cross-linguistically (Kang 2021; Ackermann & Zimmer 2021). One such cue is sonorant consonants, which appear more in feminine than masculine names across languages (Kang 2021). Many languages also morphologically mark names for gender, leading to potential interactions between morphological and phonological cues. Khan & Kang’s (2024) corpus study of 201 Urdu names found both sonorant consonants and a suffix *-a* to be associated with feminine names, but sonority is only recruited as a cue when no morphological cue is present. This may suggest functional complementarity in the use of sound-symbolic cues, a possibility not often considered in sound symbolism research.

Our study investigates whether these corpus observations reflect speakers’ active attention to phonological cues for gender, and whether the availability of morphological cues affects this perception. Alternatively, this interaction may emerge from historical derivations of suffixed feminine names from masculine roots, which would not prefer sonorants as a feminine cue. This phonology-morphology interaction has not yet been systematically investigated to our knowledge, leaving open questions about how speakers negotiate different linguistic cues for gender. To answer these questions, we ran a novel application of a sentence completion task to examine gender perception in Urdu nonce names.

Method The experiment consisted of a sentence completion task followed by a nonce name rating task. In the completion task, participants were shown Urdu sentence fragments with variable subjects and asked to complete them. Test items required gender agreement with the name subject, implicitly probing gender assignment; distractors did not allow subject agreement. See Example 1. In the rating task, participants rated each name, shown in isolation, on a visual analogue scale for gender.

Sixteen quadruplets of nonce names were created. Each quadruplet shared a vowel template but varied in consonant sonority (Son vs Obs) and morphology (Suffix vs No Suffix) in a two-by-two design; see Table 1. Each participant saw one item within each quadruplet in a Latin square design, for a total of four names per suffix-sonority condition. A mixed-effects logistic regression was run on completions (0 = Male, 1 = Female), and a mixed-effects linear regression was run on nonce name ratings (0 = Male, 99 = Female); see Formula 1.

Results 95 Urdu speakers in Pakistan completed both parts of the experiment online. As Figure 1 shows, names with sonorants led to more feminine completions ($z = 2.392, p = 0.017$) and ratings ($t = 3.165, p = 0.006$), as did names with the feminine suffix (completion: $z = 9.119, p < 0.001$; rating: $t = 17.050, p < 0.001$). We found no interaction in either case.

Discussion We found both the feminine suffix *-a* and consonant sonority to be active cues for female names in Urdu speakers’ minds, consistent with corpus results. However, unlike in corpus findings, we did not find an interaction of phonological and morphological cues. Instead, we found speakers actively extend use of the sonority cue in the suffixed context, even though this pattern is not attested in existing names, in an instance of creative overgeneralization from input. It is possible that previously observed functional complementarity between morphological and phonological cues is the result of names originating from historical derivation, rather than reflecting speakers’ complementary use of the cues in perception. Our study also has a methodological contribution in its novel use of a completion task to implicitly test gender perception in a gender-agreeing language.

Example 1: A test sentence and translation from the completion task. Subject agreement is required.
 ... زفد پودا لگا کے ‘After planting a plant, [zəf(ə)d]...’

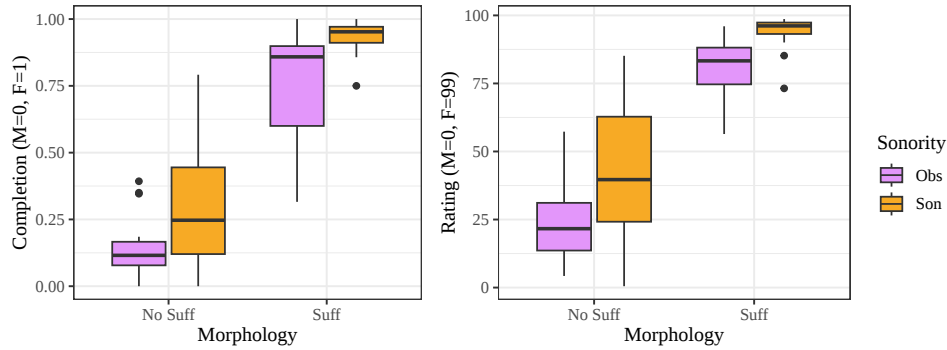
Table 1: Four of the 16 nonce name stimuli item sets, with sonority and suffix variants. Participants saw Urdu spellings, representing the listed pronunciations. Each participant saw one item per set, determined through a Latin square design. Phonotactic constraints sometimes result in variable pronunciations. Native speakers verified the naturalness and orthographic accuracy of the names.

Item set	No Suff, Obs	No Suff, Son	Suff, Obs	Suff, Son
1	زفد zəf(ə)d	منر məɳər	زفده zəf(ə)d̪a:	منره məɳ(ə)ra:
2	فاسج fa:sədʒ	رانم ra:nəm	فاسجہ fa:sədʒa:	رانمہ ra:nəma:
3	جعفیق dʒa:fi:k	رعلین ra:li:n	جعفیقہ dʒa:fi:ka:	رعلینہ ra:li:na:
4	طُقَب tʊkəb	مُرَم mʊrəm	طُقَبہ tʊkəba:	مُرَمہ mʊrəma:

Formula 1: The regression performed on both the completions (logistic, with completions coded 0 = Male, 1 = Female) and ratings (linear, with ratings running from from 0 = Male to 99 = Female).

$$\text{MORPH} * \text{SON} + (1 + \text{MORPH} * \text{SON} | \text{Participant}) + (1 + \text{MORPH} * \text{SON} | \text{Item Set})$$

Figure 1: Item-wise mean proportions of feminine agreements in completions (left) and item-wise mean ratings (right) by presence of -a suffix and consonant sonority.



References

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