

Accuracy of the Mozdeh gender detection algorithm based on first name matching in YouTube comments

The accuracy of the Mozdeh gender detection algorithm was checked by testing it on a prior dataset of YouTube comments from 2011 on videos from the SixtySymbols chemistry channel. This channel is aimed at school pupils. In 2011 YouTube included the self-declared user genders in its data so the algorithm can be checked. Sometime after 2011 gender information was removed from all public YouTube data.

Comments were downloaded on all SixtySymbols videos and the username and gender of each commenter recorded in 2011. After removing duplicate users, there were 17262 unique commenters, 16710 of which had reported a gender. The algorithm was applied to these usernames (Table 1). If the declared gender was always correct, a female was classified as female 7.1% of the time and as male 0.6% of the time. Similarly, males were classified as male 6.6% of the time and as female 1.1% of the time.

If the gender algorithm is used to estimate the proportion of males and females in a set of YouTube users then the errors will almost always give an incorrect balance but the extent of the incorrectness varies according to the ratio of male and female commenters. If there are equal numbers of male and female commenters, for example, the gender estimation method would incorrectly estimate that 53.5% of commenters were male. Thus, a finding that males outnumber females should be treated with caution if the males are estimated to be less than 53.5% of all commenters.

Table A1. Gussed gender vs. declared gender.

Gussed gender	Declared gender			Total	Probability of guess for declared gender	
	No gender declared	F	M		f	m
F	8	100	92	200	7.1%	0.6%
M	21	16	851	888	1.1%	5.6%
Unknown	523	1293	14358	16174	91.8%	93.8%
Total	552	1409	15301	17262	1	1