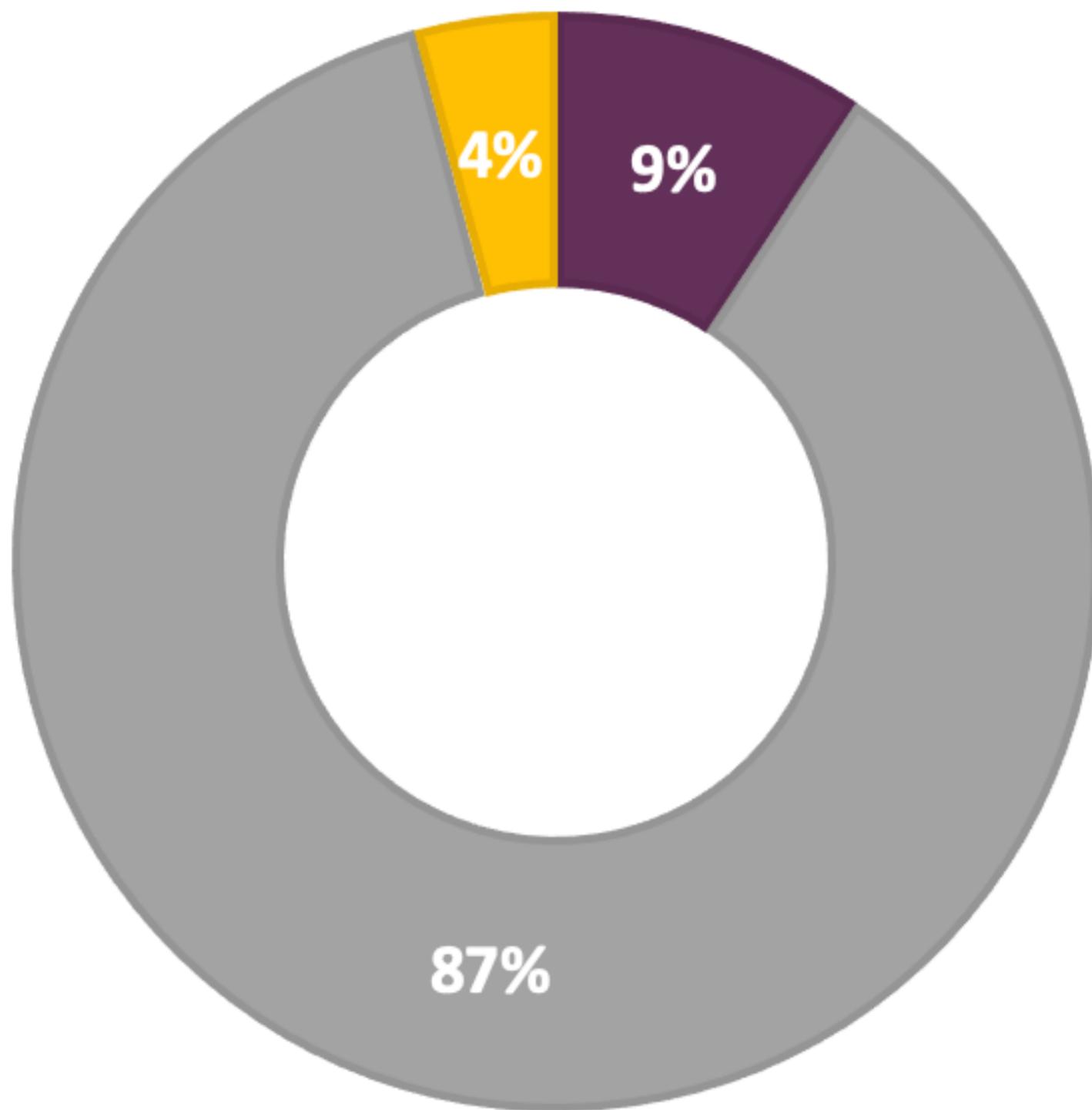
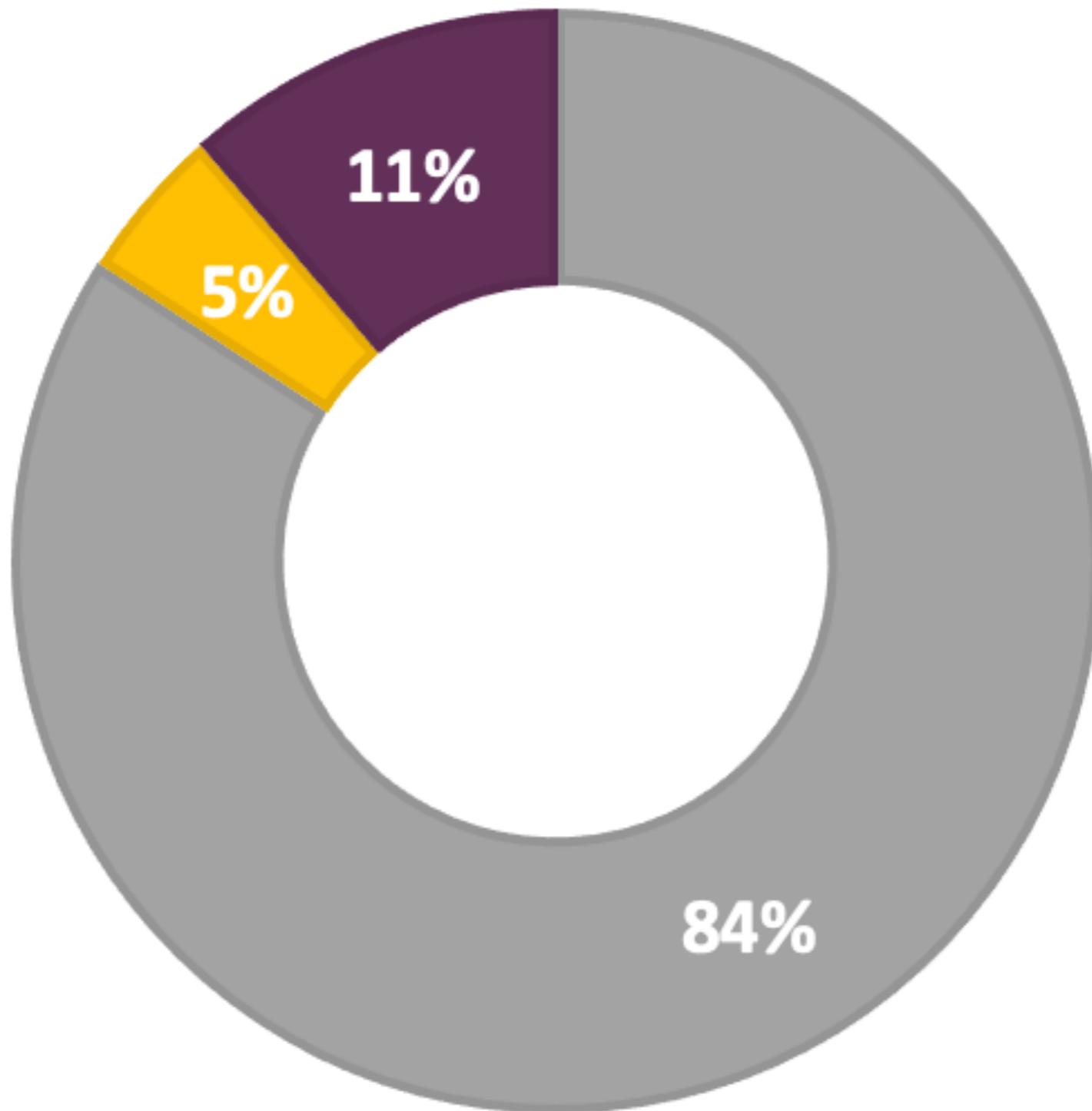


Gender Representation in Country Music + Spotify's Recommender System

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A total of 430 songs were recommended through 43 refreshes in Spotify. 40 of those songs were performed by a lead female artist or all-female ensemble, with 18 by male-female ensembles and the remaining 372 by a lead male artist and all-male ensemble.



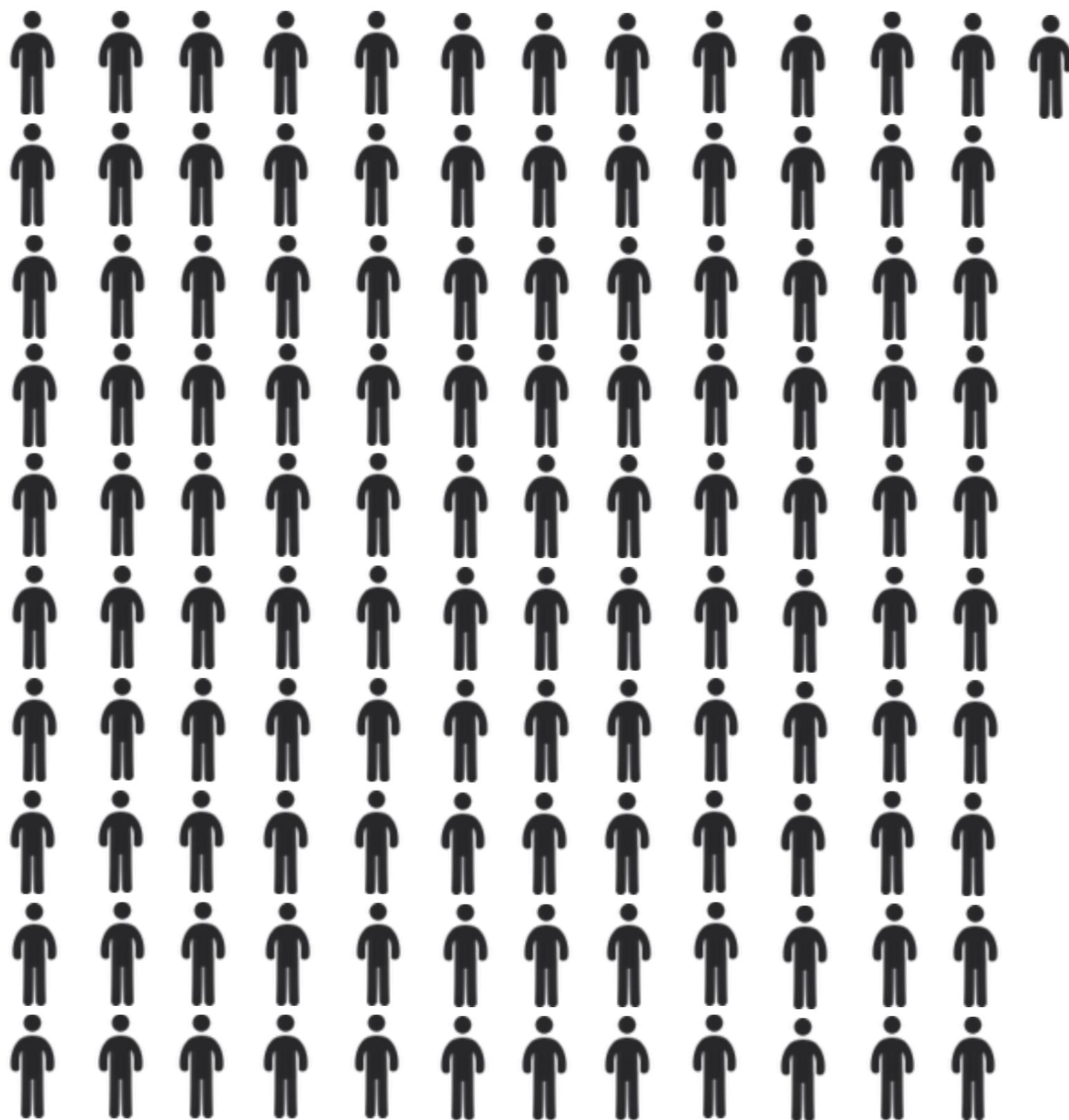
The percentage increases slightly when looking at unique number of men, women, and male-female ensembles captured in this dataset. Most of the artists had multiple recommendations. This includes female artists: 20 women were responsible for the 40 songs recommended.

LEE BRICE 4
LUKE COMBS 4
BILLY CURRINGTON 4
FLORIDA GEORGIA LINE 4
SAM HUNT 4
ALAN JACKSON 4
TOBY KEITH 4
JON PARDI 4
GEORGE STRAIT 4
ZAC BROWN BAND 4
ALABAMA 3
JASON ALDEAN 3
RODNEY ATKINS 3
DIERKS BENTLEY 3
LUKE BRYAN 3
TIM MCGRAW 3
OLD DOMINION 3
BRAD PAISLEY 3
RASCAL FLATTS 3
JOSH TURNER 3
BRETT YOUNG 3
BROOKS & DUNN 2
KANE BROWN 2
KENNY CHESNEY 2
ERIC CHURCH 2
RANDY HOUSER 2
JAKE OWEN 2
DARIUS RUCKER 2
BLAKE SHELTON 2
COLE SWINDELL 2
CHRIS YOUNG 2

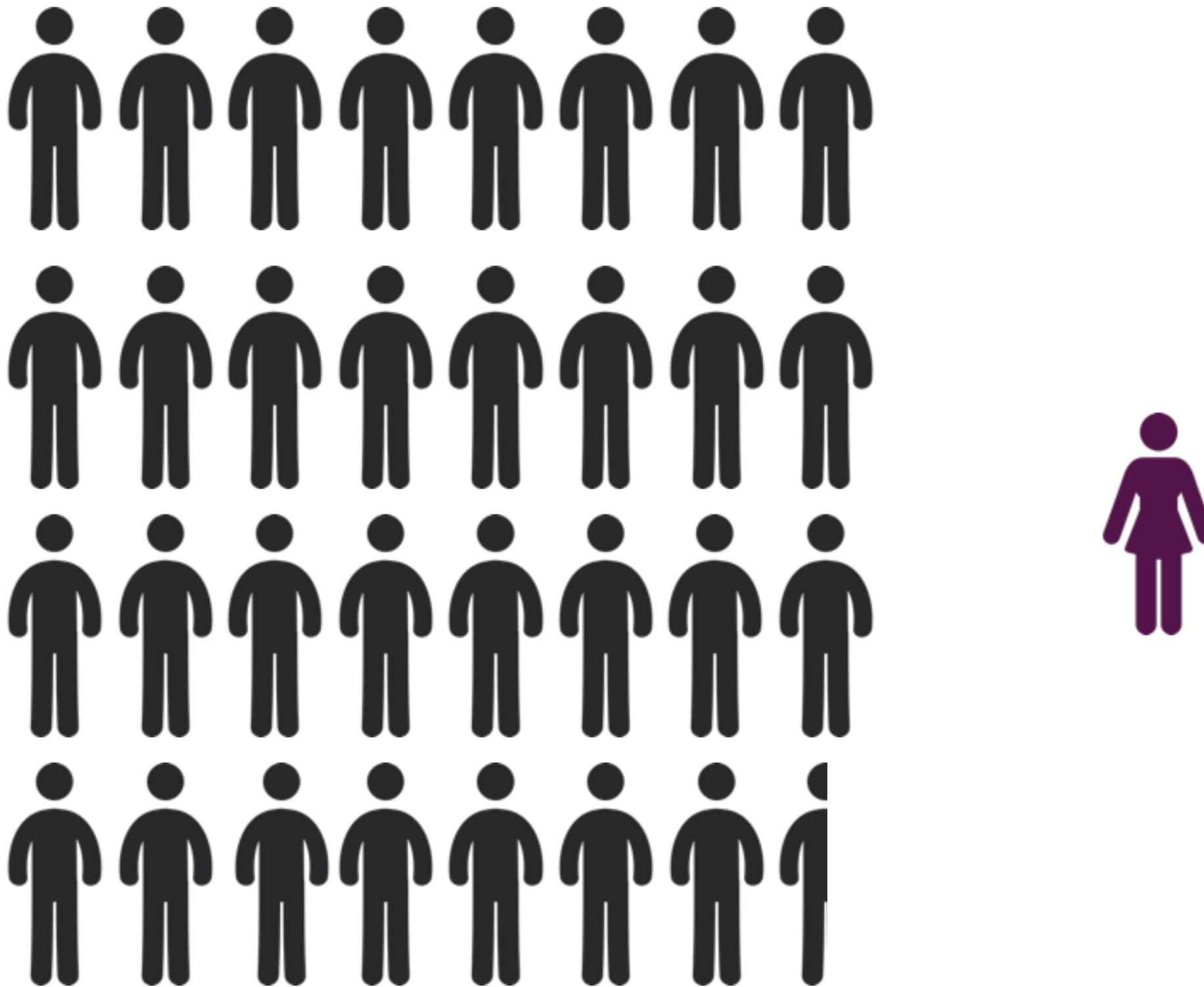
Before Spotify recommended *one* song by a female artist, the algorithm had recommended 121 songs by male artists - including 2-3 songs by the artists in this table.

What might that look like?

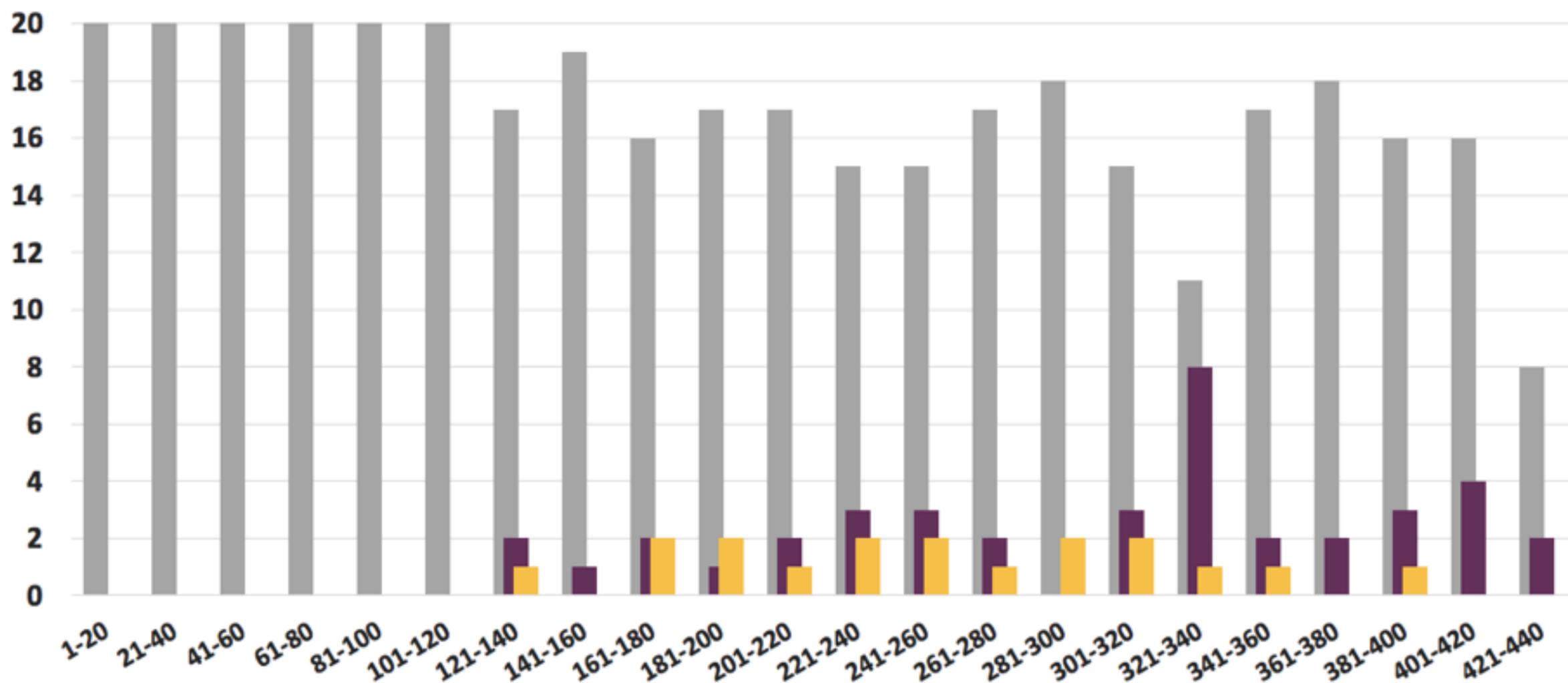




The first song by a female artist was recommended on the 12th refresh: Miranda Lambert's "Mama's Broken Heart" was the 122nd recommended song.

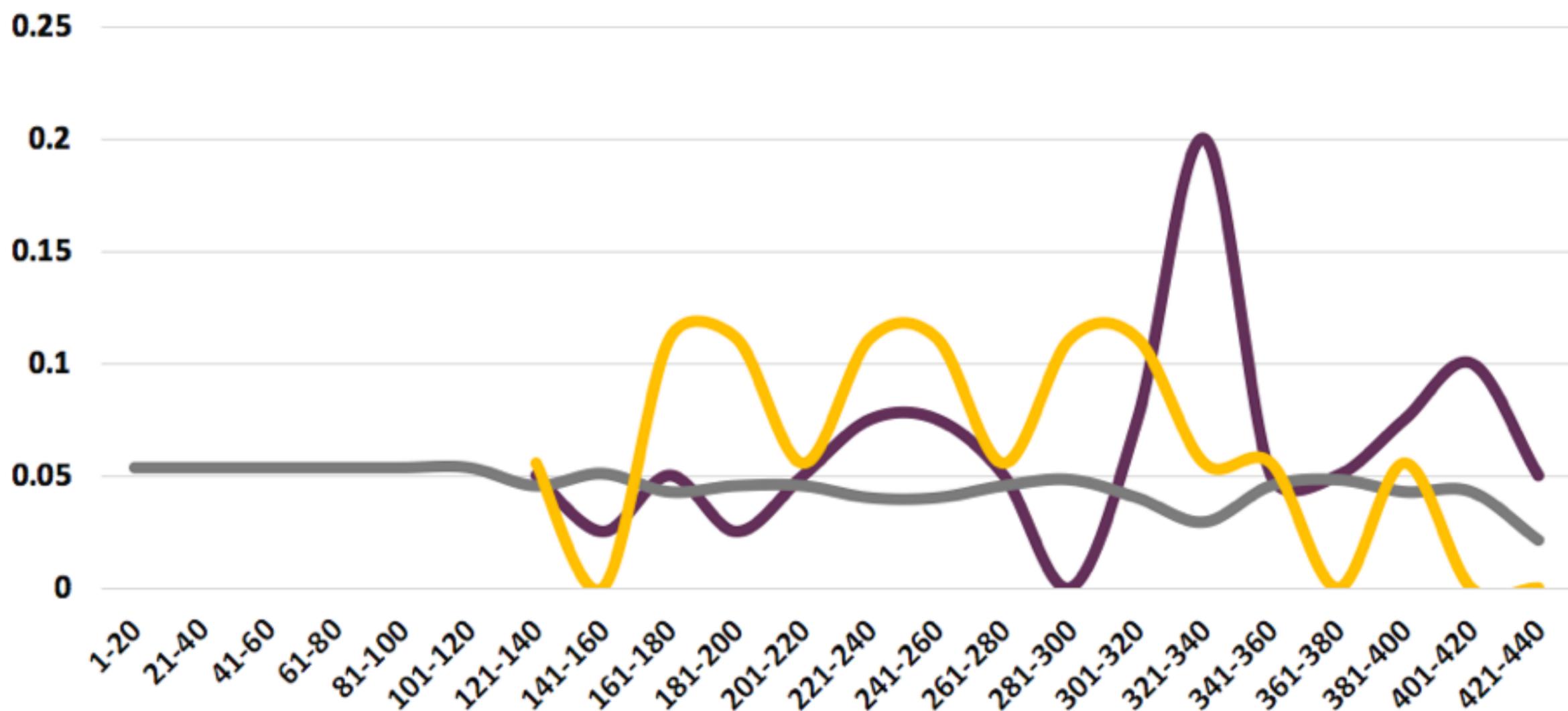


Within the first 200 songs just *six (3%)* by female artists and *five (3%)* by male-female ensembles are recommended. The remaining *189 songs (94%)* are performed by male artists. That means that within the first 200 recommended songs there is a 31.5 to 1 ratio between male and female artists.



Graphing the placement of the songs curated by Spotify's recommender clearly reveals where songs by women and male-female ensembles are occurring within the dataset. As with Martina McBride's experience, Spotify did not recommend a song by a female artist until #122 and #129 with songs by Miranda Lambert and Shania Twain (respectively). This means that Spotify's recommender system offers users 121 songs by male artists before including 1 by a female artist (and none by a male-female ensemble).

The majority of the songs by women - the remaining 34 songs - were recommended in the bottom 230 songs, with the largest number of songs (**eight**) recommended within the 20 spots between #321 and 340). After a song by a women is first recommended (at #122), there is an average of 3 songs by a female artist recommended in the 20 position (2 refresh) bin.



The data that we see in this graph are not raw data (as in the previous graphs), but rather data that has been normalized to allow us to view the position of men and women on equal terms.

Male artists hold a stable/constant place within the entire playlist, whereas female artists are pushed to the back end. Male-female ensembles peak through the middle-section.

If the algorithm were not designed with gender as one of its defining features – if it treated all genders equally – we would not see peaks of this nature. Men, women, and male-female ensembles would be similarly stable. To artificially increase representation of women, male-female ensembles are coded “female” – but this still would not result in equal representation.

Only 19 solo female artists and 1 all-female ensemble were recommended by Spotify. This is in contrast to 148 unique solo male artists and all-male ensembles. Fifty-four of these male artists have 4 songs each recommended in this experiment. Only one woman - Miranda Lambert - has 4 songs in this dataset.

MIRANDA LAMBERT 4
FAITH HILL 3
MAREN MORRIS 3
SHANIA TWAIN 3
CARRIE UNDERWOOD 3
LAUREN ALAINA 2
LORETTA LYNN 2
MARTINA MCBRIDE 2
REBA MCENTIRE 2
KACEY MUSGRAVES 2
DOLLY PARTON 2
GRETCHEN WILSON 2
TRISHA YEARWOOD 2
CAM 1
DEANA CARTER 1
DIXIE CHICKS 1
SARA EVANS 1
JO DEE MESSINA 1
CASSADEE POPE 1
RAELYNN 1
LEEANN WOMACK 1

CODING SYSTEM

CODE	ARTIST/ENSEMBLE TYPE	# IND. SONGS	% IND. SONGS
MALE	Male solo artist	281	65.3%
	All-Male ensemble	67	15.6%
	Male solo, feat. male solo	6	1.4%
	Male solo, feat. male ensemble	1	0.2%
	Male solo, feat. female solo	12	2.8%
	Male solo, feat. male-female ensemble	1	0.2%
	Male solo, feat. male-female choir	1	0.2%
	Male ensemble, feat. male solo	3	0.7%
FEMALE	Female solo artist	39	9.1%
	All-Female ensemble	1	0.2%
MALE-FEMALE ENS.	Male-female ensemble	18	4.2%
Total songs		430	100%