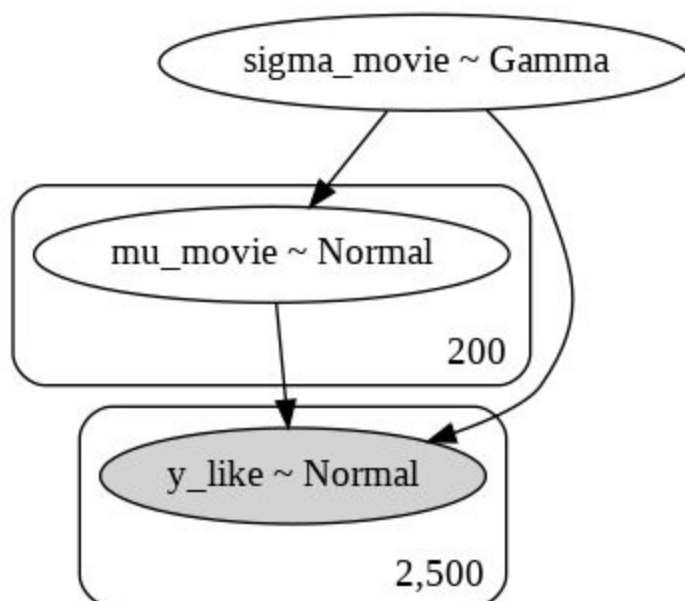


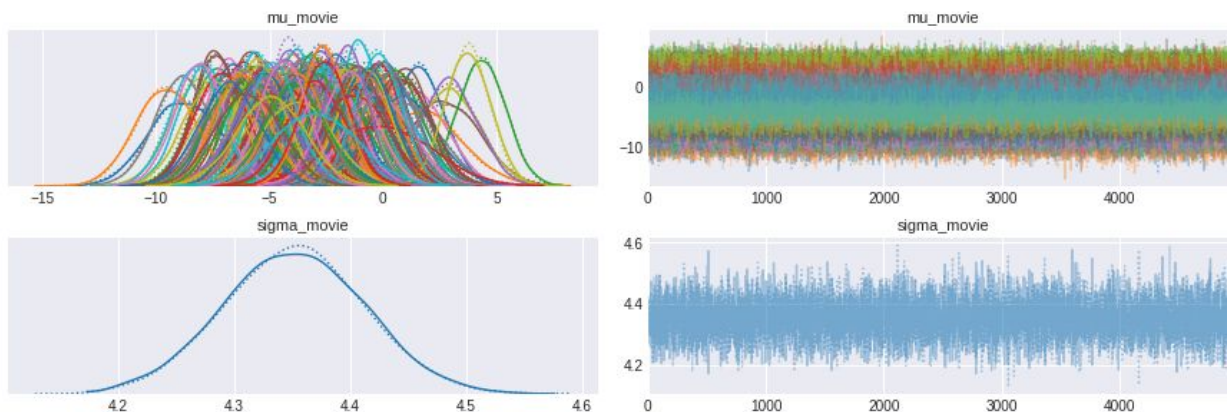
PROJEKT Z PROGRAMOWANIA PROBABILISTYCZNEGO

Paweł Gałka, Marcin Grzyb

- **Zestaw danych:** dataframe 14.csv
- **Model na 3.0 - wnioski:**



Wyniki :



Worst 3 films based on mean rating

	mean	sd	hpd_3%	...	ess_bulk	ess_tail	r_hat
mu_movie[131]	-9.534	1.319	-11.998	...	28277.0	6934.0	1.0
mu_movie[137]	-8.799	1.213	-11.044	...	27501.0	5965.0	1.0
mu_movie[90]	-8.718	1.512	-11.559	...	27455.0	7361.0	1.0

Best 3 films based on mean rating

	mean	sd	hpd_3%	...	ess_bulk	ess_tail	r_hat
mu_movie[68]	: 2.892	1.359	0.330	...	21277.0	6916.0	1.0
mu_movie[158]	: 3.736	0.954	2.020	...	23003.0	7389.0	1.0
mu_movie[92]	: 4.346	1.032	2.402	...	28434.0	6660.0	1.0

Dane dla każdego modelu :

Sampling correct: True based on r_hat (all = 1.0). Również 0 divergences w samplingach

Summary

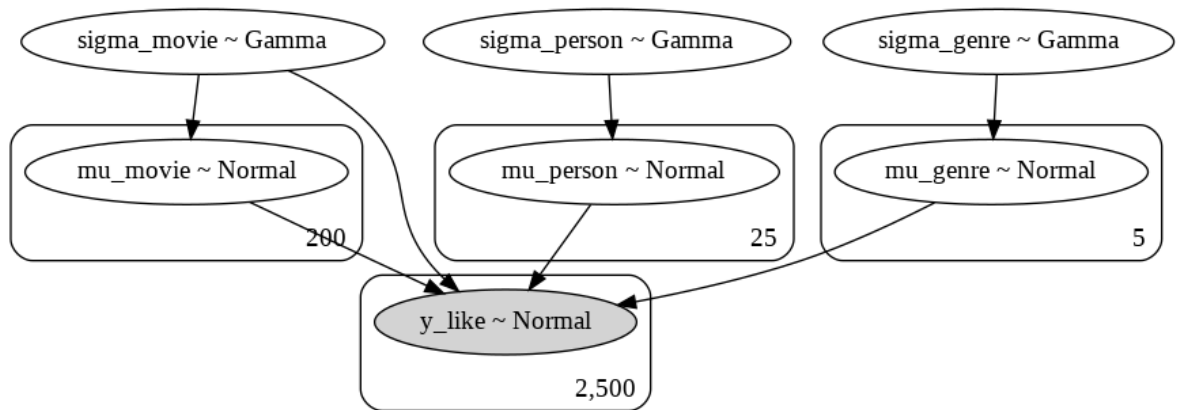
Dostępne również w pliku .ipynb

	Unnamed: 0	mean	sd	hpd_3%	hpd_97%
0	mu_movie[0]	-2.217	1.174	-4.437	-0.020
1	mu_movie[1]	-2.832	1.188	-5.035	-0.575
2	mu_movie[2]	-1.701	1.213	-3.901	0.643
3	mu_movie[3]	-6.516	1.372	-9.109	-3.926
4	mu_movie[4]	0.115	1.426	-2.687	2.694
5	mu_movie[5]	-5.841	0.992	-7.708	-3.978
6	mu_movie[6]	-0.382	1.215	-2.700	1.885
7	mu_movie[7]	-0.614	1.178	-2.851	1.540
8	mu_movie[8]	-6.900	1.384	-9.517	-4.366
9	mu_movie[9]	-3.374	1.045	-5.297	-1.366
10	mu_movie[10]	1.581	1.115	-0.474	3.711
11	mu_movie[11]	-5.409	1.115	-7.505	-3.325
12	mu_movie[12]	-2.832	1.332	-5.284	-0.337
13	mu_movie[13]	-5.178	1.210	-7.500	-2.960
14	mu_movie[14]	-3.515	1.111	-5.561	-1.346
15	mu_movie[15]	-1.481	1.795	-4.789	1.939
16	mu_movie[16]	-7.064	1.227	-9.340	-4.780
17	mu_movie[17]	-6.411	1.342	-8.979	-3.945
18	mu_movie[18]	-1.141	1.547	-4.017	1.797
19	mu_movie[19]	-0.006	1.560	-2.822	2.972
20	sigma_movie	4.352	0.061	4.241	4.467

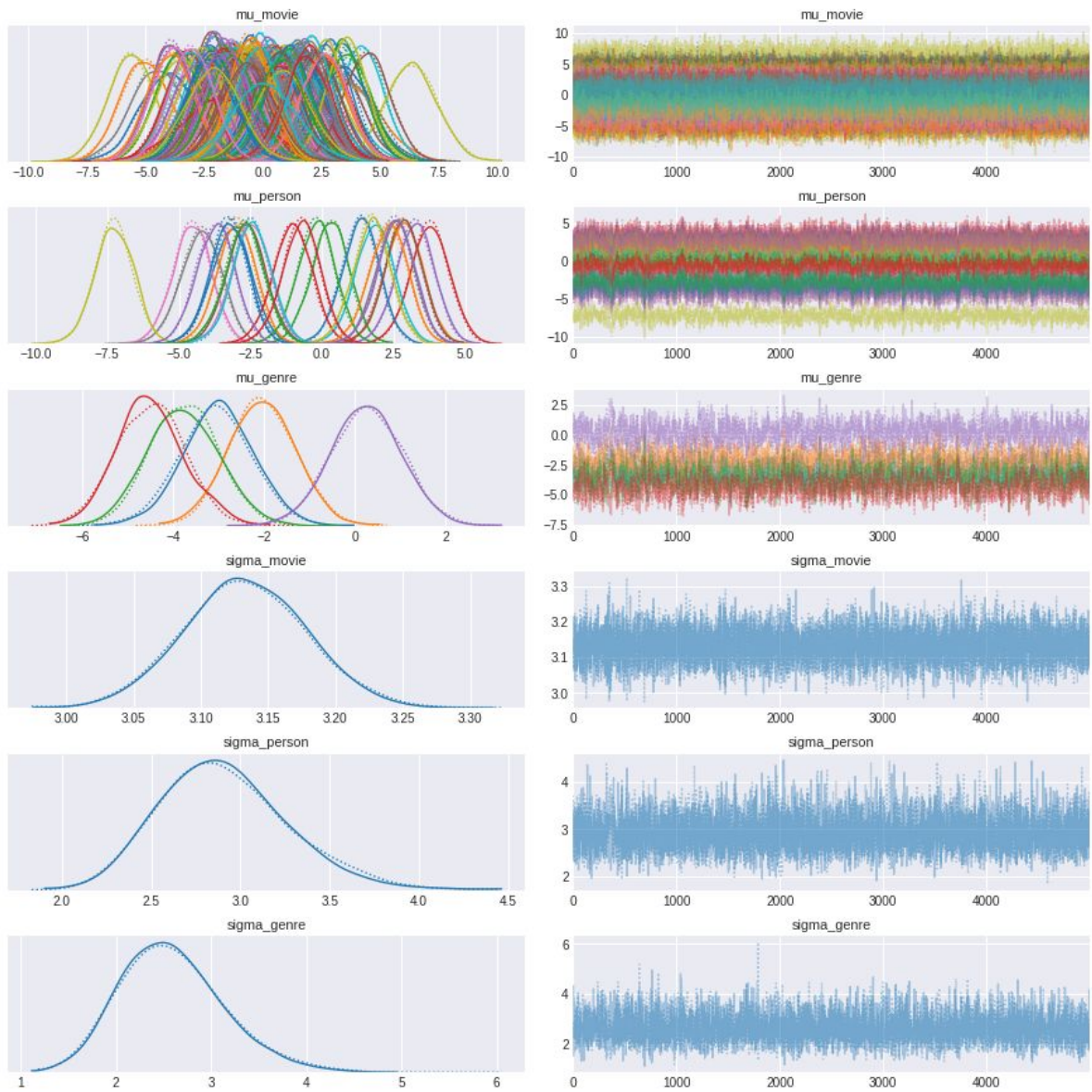
Średnie dla filmów:

Dostępne w pliku .ipynb lub model_3_means.csv

- Model na 4.0 - wnioski



Wyniki:



Most popular genre based on likes is

	mean	sd	hpd_3%	hpd_97%	...	ess_sd	ess_bulk	ess_tail	r_hat
mu_genre[4]	0.27	0.775	-1.238	1.672	...	919.0	922.0	1734.0	1.0

Least popular genre based on likes is

	mean	sd	hpd_3%	hpd_97%	...	ess_sd	ess_bulk	ess_tail	r_hat
mu_genre[3]	-4.497	0.747	-5.86	-3.058	...	786.0	792.0	1127.0	1.0

Most critical person based on likes is

	mean	sd	hpd_3%	hpd_97%	...	ess_sd	ess_bulk	ess_tail	r_hat
mu_person[8]	-7.273	0.662	-8.517	-6.034	...	800.0	818.0	1206.0	1.0

Dane dla każdego modelu :

Sampling correct: True based on r_hat (all = 1.0). Również 0 divergences w samplingach

Summary:

Dostępne również w pliku .ipynb

Unnamed: 0	mean	sd	hpd_3%	hpd_97%
0	mu_movie[0]	1.724	0.937	-0.085 3.412
1	mu_movie[1]	-1.288	0.983	-3.162 0.576
2	mu_movie[2]	-1.806	1.018	-3.781 0.038
3	mu_movie[3]	-1.589	1.063	-3.563 0.404
4	mu_movie[4]	-2.361	1.150	-4.580 -0.219
5	mu_movie[5]	-0.600	0.898	-2.254 1.097
6	mu_movie[6]	0.609	0.981	-1.220 2.458
7	mu_movie[7]	-0.070	0.988	-1.987 1.706
8	mu_movie[8]	-0.670	1.114	-2.773 1.408
9	mu_movie[9]	0.365	0.913	-1.335 2.108
10	mu_movie[10]	1.580	0.977	-0.185 3.478
11	mu_movie[11]	-2.121	0.959	-3.910 -0.341
12	mu_movie[12]	1.679	1.036	-0.198 3.716
13	mu_movie[13]	-0.743	0.999	-2.639 1.107
14	mu_movie[14]	1.108	0.903	-0.558 2.802
15	mu_movie[15]	-1.078	1.350	-3.514 1.576
16	mu_movie[16]	-2.763	0.982	-4.620 -0.929
17	mu_movie[17]	-4.509	1.114	-6.615 -2.427
18	mu_movie[18]	2.297	1.188	0.187 4.639
19	mu_movie[19]	1.109	1.199	-1.145 3.346
230	sigma_movie	3.133	0.045	3.047 3.216

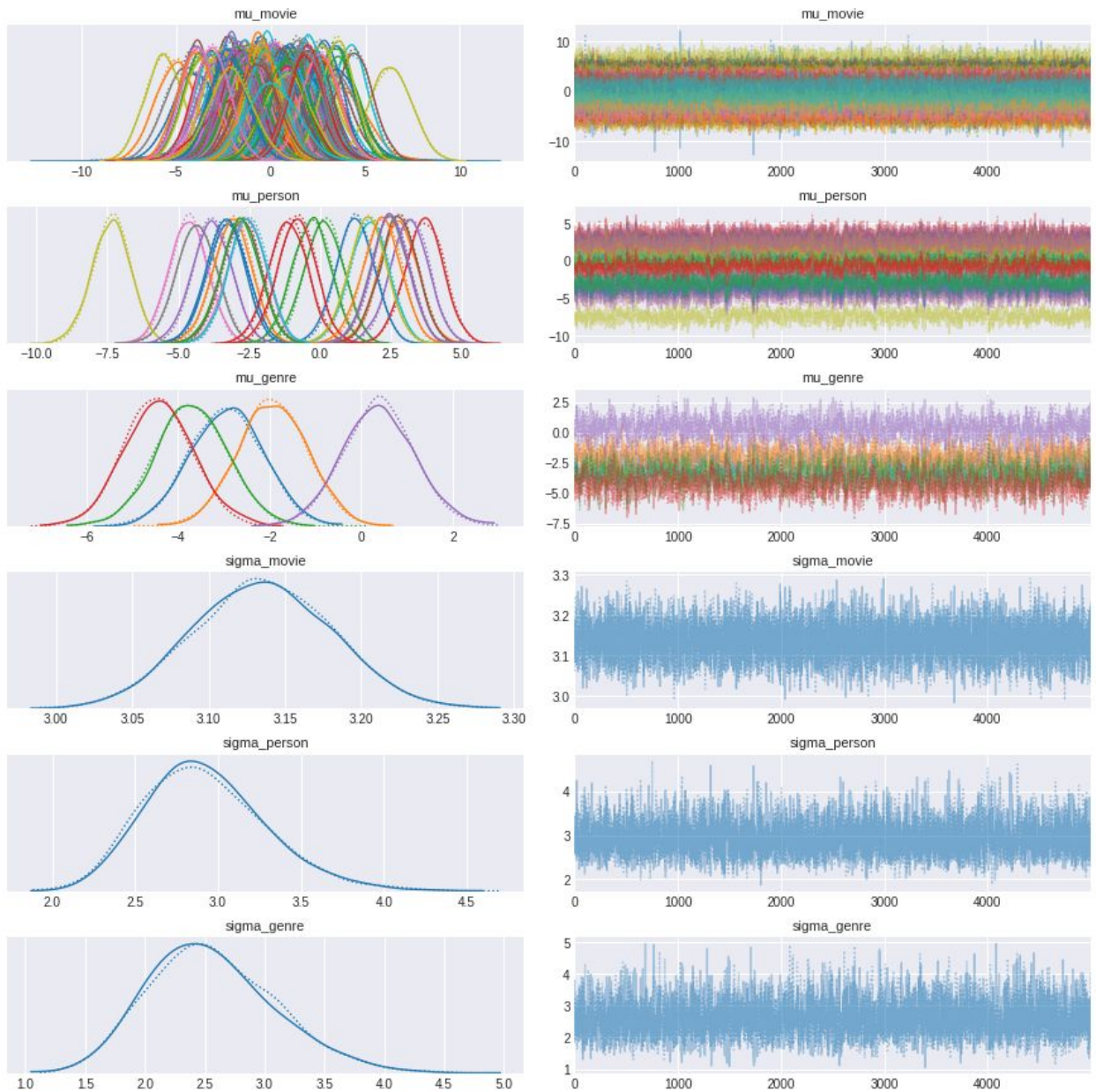
Średnie dla filmów:

Dostępne w pliku .ipynb lub model_4_means.csv

Dla danych z usuniętym filmem id=0:

Model jest taki sam.

Wyniki:



Movie 0 data

```
mean      0.002
sd        3.100
hpd_3%    -5.897
hpd_97%    5.743
```

Dane dla każdego modelu :

Sampling correct: True based on \hat{r} (all = 1.0). Również 0 divergences w samplingach

Summary:

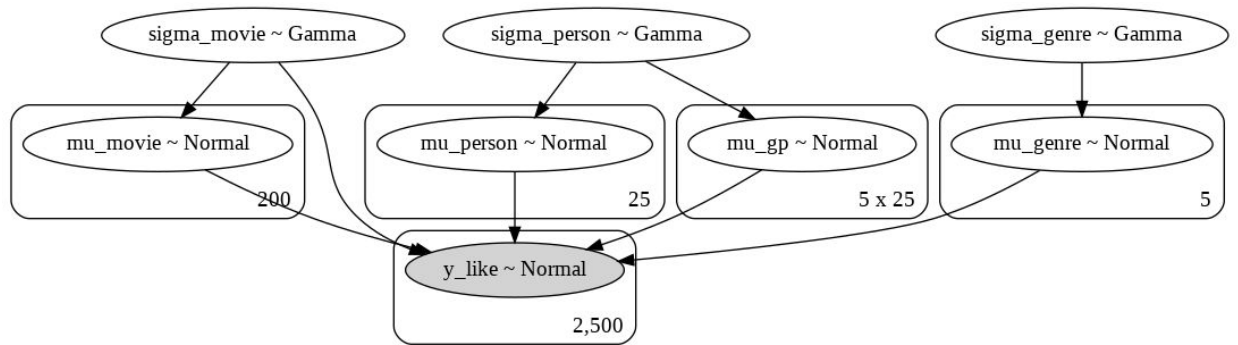
Dostępne również w pliku .ipynb

	Unnamed: 0	mean	sd	hpd_3%	hpd_97%
0	mu_movie[0]	0.002	3.100	-5.897	5.743
1	mu_movie[1]	-1.299	0.977	-3.201	0.451
2	mu_movie[2]	-1.843	1.020	-3.716	0.087
3	mu_movie[3]	-1.589	1.083	-3.609	0.491
4	mu_movie[4]	-2.403	1.161	-4.494	-0.191
5	mu_movie[5]	-0.589	0.886	-2.299	1.008
6	mu_movie[6]	0.585	0.971	-1.252	2.364
7	mu_movie[7]	-0.107	0.993	-1.997	1.724
8	mu_movie[8]	-0.637	1.088	-2.754	1.351
9	mu_movie[9]	0.346	0.906	-1.328	2.042
10	mu_movie[10]	1.551	0.966	-0.255	3.369
11	mu_movie[11]	-2.146	0.952	-3.964	-0.385
12	mu_movie[12]	1.698	1.028	-0.197	3.695
13	mu_movie[13]	-0.732	0.951	-2.393	1.147
14	mu_movie[14]	1.116	0.913	-0.633	2.793
15	mu_movie[15]	-1.085	1.372	-3.670	1.402
16	mu_movie[16]	-2.753	0.998	-4.687	-0.921
17	mu_movie[17]	-4.502	1.100	-6.520	-2.408
18	mu_movie[18]	2.297	1.217	0.019	4.588
19	mu_movie[19]	1.091	1.193	-1.102	3.372
230	sigma_movie	3.136	0.045	3.051	3.218

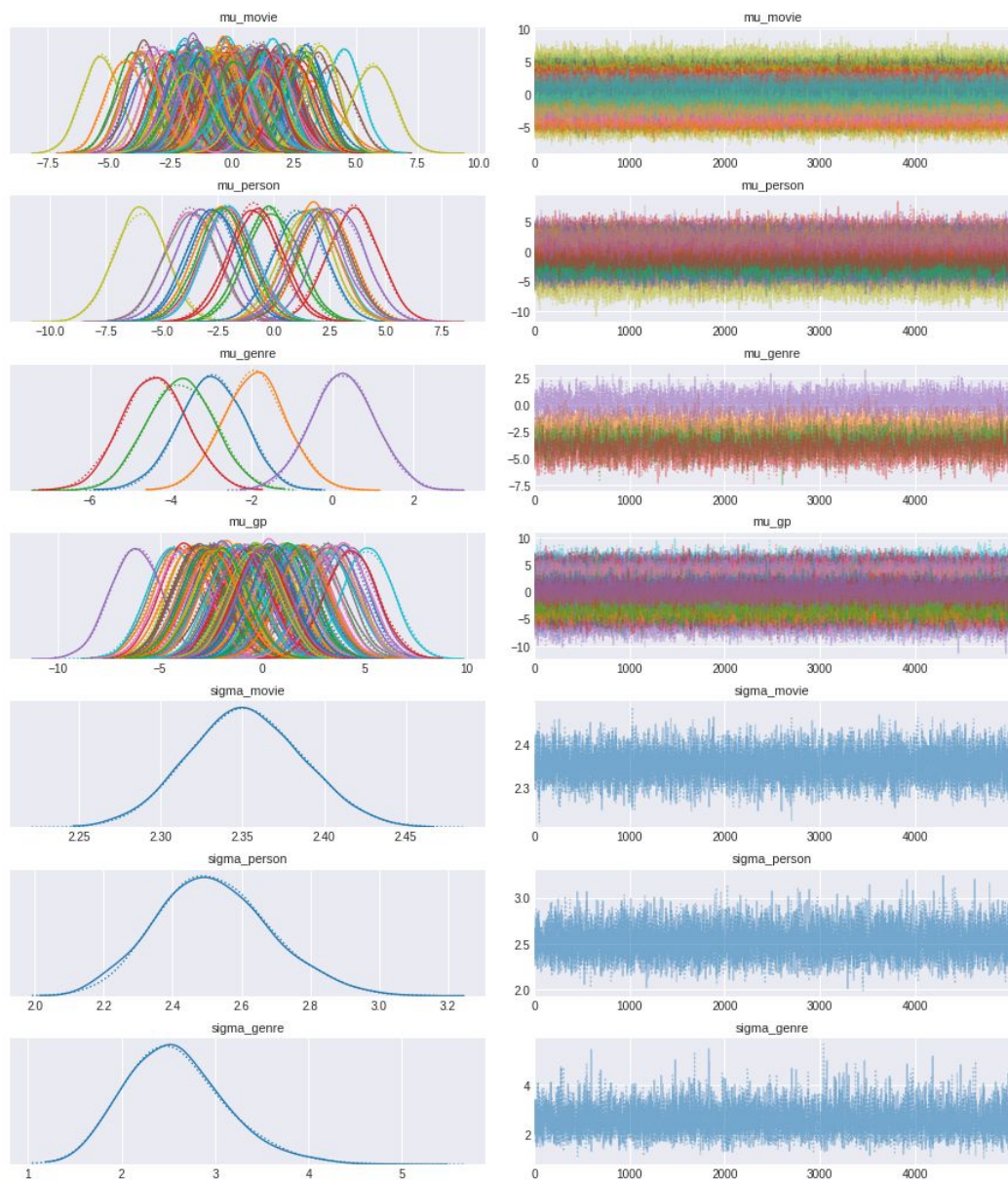
Średnie dla filmów:

Dostępne w pliku .ipynb lub model_4_1_means.csv

- Model na 5.0 - wnioski:



Wyniki:



Zależność **mu_gp** może wskazywać jak dana osoba będzie głosować na dany genre.

Po przesortowaniu wyników **mu_gp** po wartości **mean** i wzięciu największych wyników, dostajemy:

	mean	sd
mu_gp[3,4]	5.161	1.221
mu_gp[4,3]	4.358	1.255
mu_gp[2,24]	4.251	1.229
mu_gp[3,21]	4.030	1.180
mu_gp[3,15]	3.917	1.208

Można to interpretować jako 4. Os. bardzo lubi genre 3., 3. Os. bardzo lubi genre 4., itp.

Dane dla każdego modelu :

Sampling correct: True based on **r_hat** (all = 1.0). Również 0 divergences w samplingach

Summary:

Dostępne również w pliku .ipynb

Unnamed: 0	mean	sd	hpd_3%	hpd_97%
0	mu_movie[0]	0.880	0.717	-0.437 2.242
1	mu_movie[1]	-1.369	0.763	-2.751 0.095
2	mu_movie[2]	-1.013	0.763	-2.340 0.518
3	mu_movie[3]	-1.347	0.815	-2.942 0.126
4	mu_movie[4]	-0.847	0.905	-2.599 0.803
5	mu_movie[5]	-1.075	0.678	-2.327 0.213
6	mu_movie[6]	0.929	0.742	-0.496 2.302
7	mu_movie[7]	0.169	0.748	-1.211 1.608
8	mu_movie[8]	-0.523	0.817	-2.083 0.995
9	mu_movie[9]	0.630	0.690	-0.680 1.912
10	mu_movie[10]	1.722	0.743	0.306 3.081
11	mu_movie[11]	-2.231	0.721	-3.565 -0.841
12	mu_movie[12]	1.015	0.786	-0.462 2.490
13	mu_movie[13]	-0.007	0.748	-1.413 1.435
14	mu_movie[14]	1.829	0.693	0.516 3.124
15	mu_movie[15]	-1.012	1.023	-2.881 0.956
16	mu_movie[16]	-2.034	0.730	-3.352 -0.646
17	mu_movie[17]	-3.864	0.828	-5.358 -2.255
18	mu_movie[18]	1.930	0.910	0.191 3.601
19	mu_movie[19]	1.901	0.897	0.213 3.563
355	sigma_movie	2.352	0.034	2.289 2.418

Średnie dla filmów:

Dostępne w pliku .ipynb lub model_5_means.csv

Załączniki:

- Projekt_probabilistyczne_Gałka_Grzyb.ipynb - plik źródłowy z rozwiązaniami
- Model_3.csv - wyniki modelu 3.0
- Model_3_means.csv - średnie dla modelu 3.0
- Model_4.csv - wyniki modelu 4.0
- Model_4_means.csv - średnie dla modelu 4.0
- Model_4_1.csv - wyniki modelu 4.0 bez filmu id=0
- Model_4_1_means.csv - średnie dla modelu 4.0 bez filmu id=0
- Model_5.csv - wyniki modelu 5.0
- Model_5_means.csv - średnie dla modelu 5.0