A: Datasheet

Algorithm: lineclova_002

Developer: Line Corporation

Submission Date: 2022_07_29

Template size: 2048 bytes

Template time (2.5 percentile): 824 msec

Template time (median): 825 msec

Template time (97.5 percentile): 829 msec

Investigation:

Mugshot webcam ranking 20 (out of 331) –– FNIR(1600000, 0, 1) = 0.0075 vs. lowest 0.0055 from sensetime_008

Mugshot profile ranking 27 (out of 300) –– FNIR(1600000, 0, 1) = 0.0700 vs. lowest 0.0521 from sensetime_007

Immigration visa–border ranking 247 (out of 258) –– FNIR(1600000, 0, 1) = 0.7161 vs. lowest 0.0006 from cloudwalk_mt_001

Immigration visa–kiosk ranking 201 (out of 203) –– FNIR(1600000, 0, 1) = 0.6968 vs. lowest 0.0395 from cloudwalk_mt_001

Identification:

Frontal mugshot ranking 349 (out of 369) –– FNIR(1600000, T, L+1) = 0.8452, FPIR=0.001000 vs. lowest 0.0013 from sensetime_008

Mugshot webcam ranking 176 (out of 329) –– FNIR(1600000, T, L+1) = 0.1264, FPIR=0.001000 vs. lowest 0.0090 from sensetime_008

Mugshot profile ranking 114 (out of 299) –– FNIR(1600000, T, L+1) = 0.9808, FPIR=0.001000 vs. lowest 0.0698 from cloudwalk_mt_001

Immigration visa–border ranking 223 (out of 257) –– FNIR(1600000, T, L+1) = 0.7171, FPIR=0.001000 vs. lowest 0.0013 from cloudwalk_mt_001

Immigration visa–kiosk ranking 151 (out of 203) –– FNIR(1600000, T, L+1) = 0.7375, FPIR=0.001000 vs. lowest 0.0532 from cloudwalk_mt_001
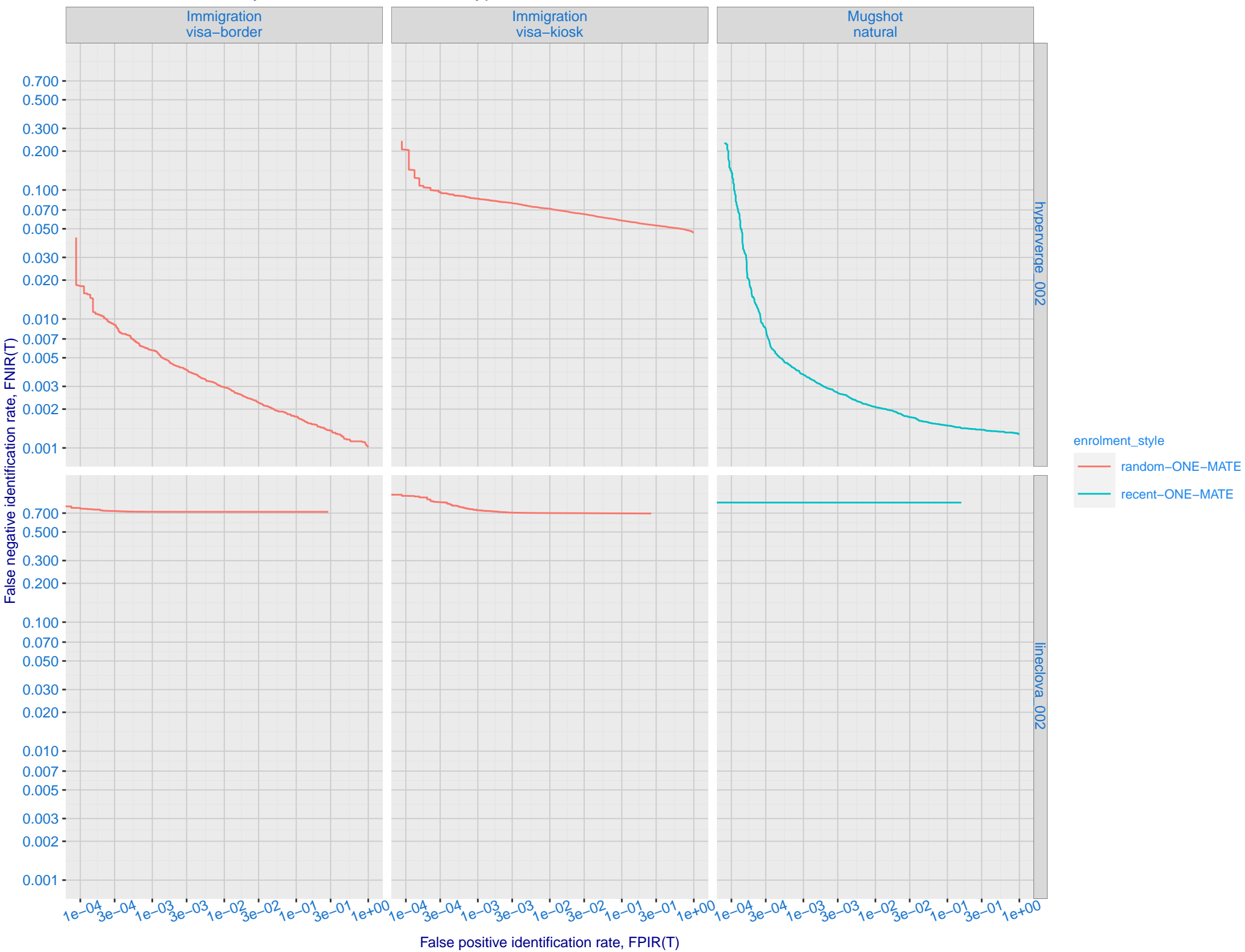
B: Mugshot natural images, identification mode: FNIR(N, L+1, T) vs. most accurate (hyperverge_002)
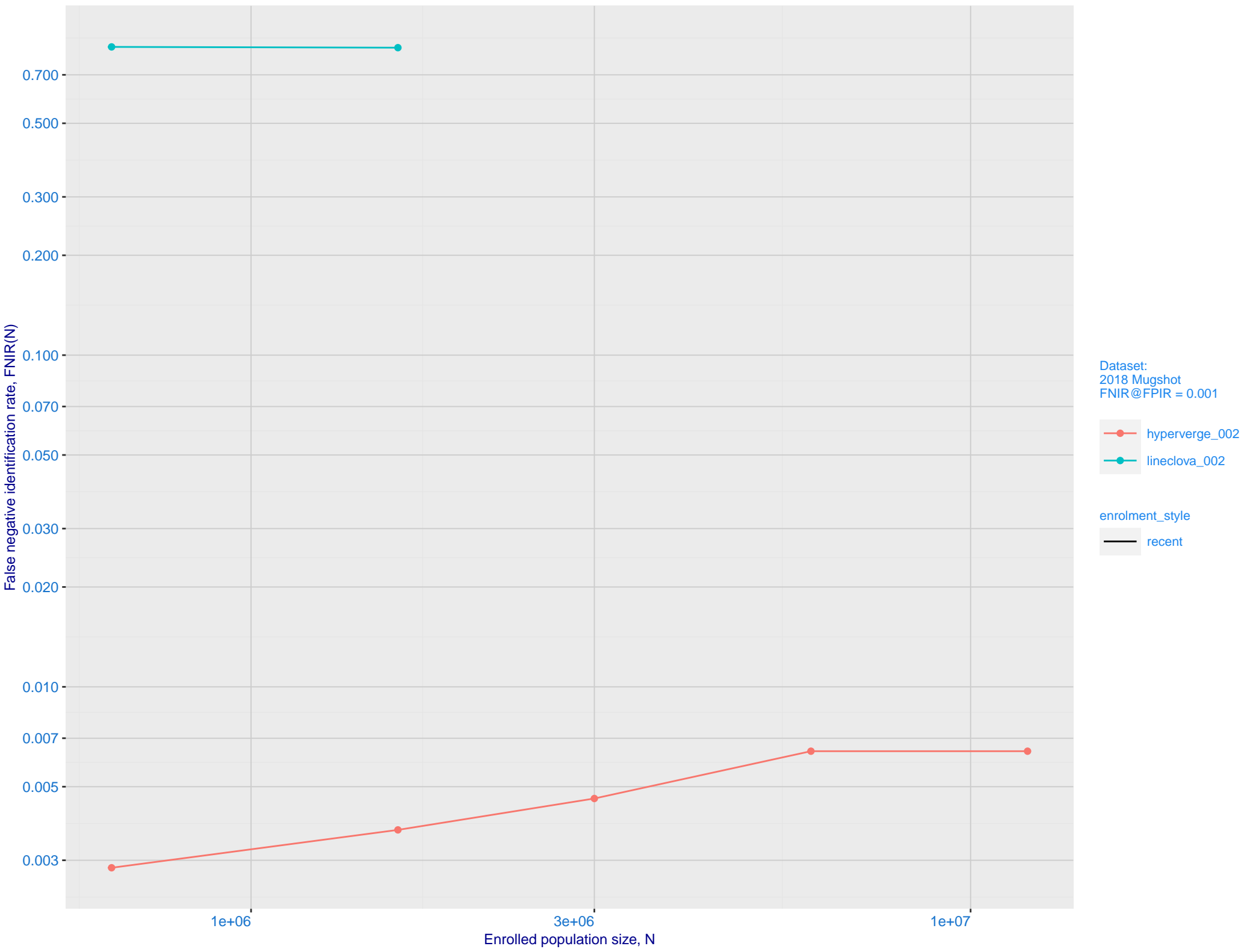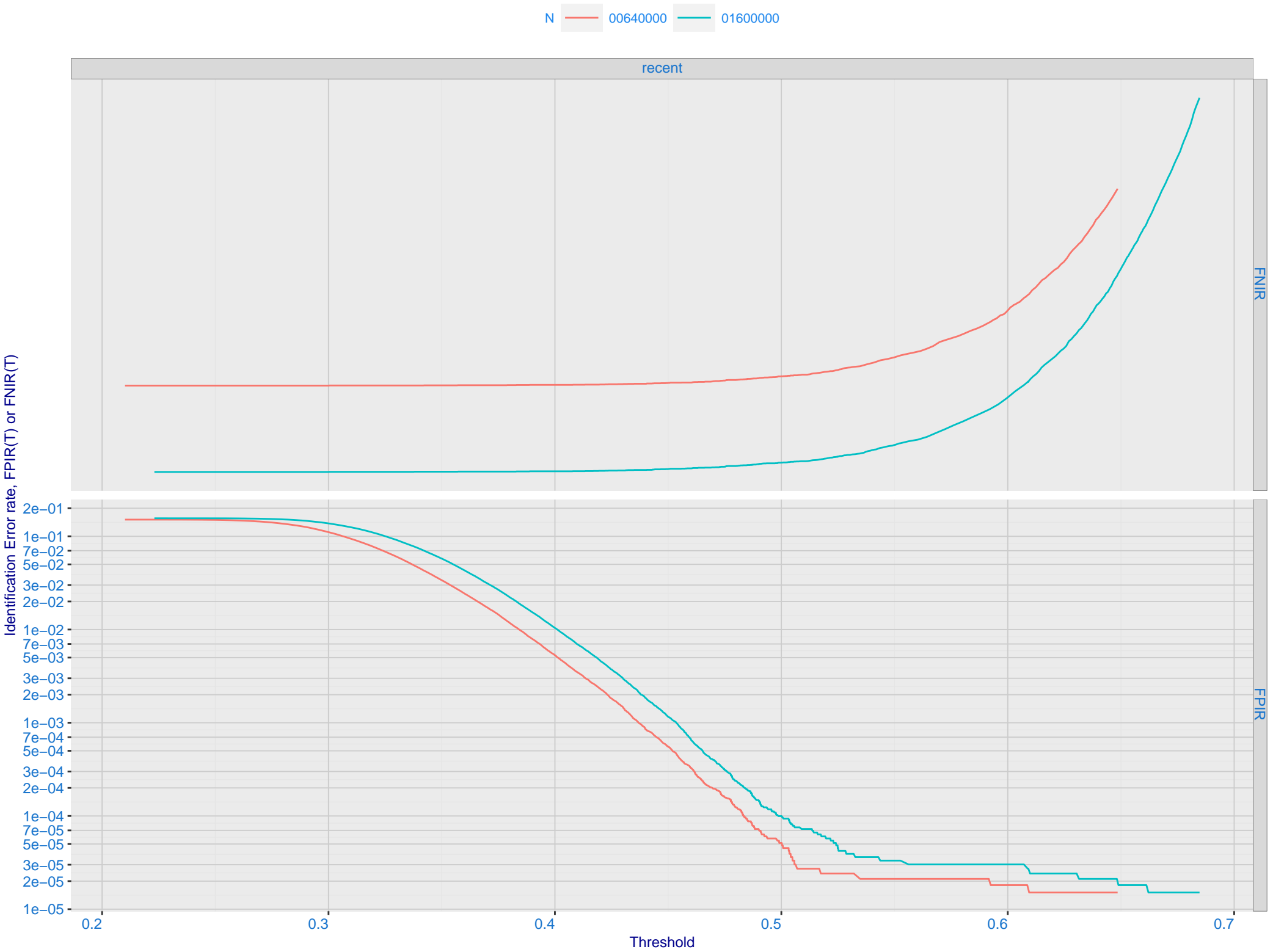
C: Evolution of accuracy for LINECLOVA algorithms on three datasets 2018 – present
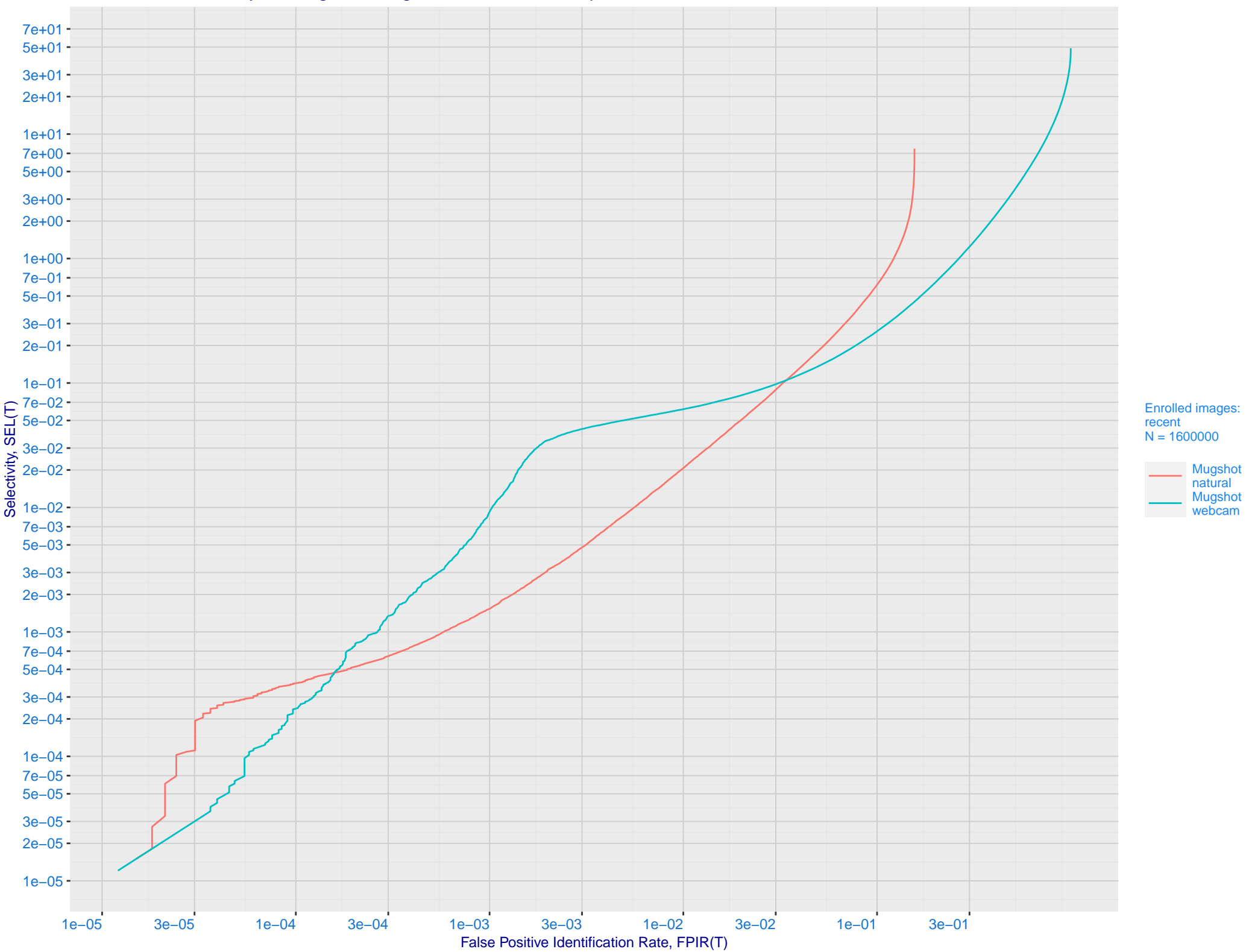
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals
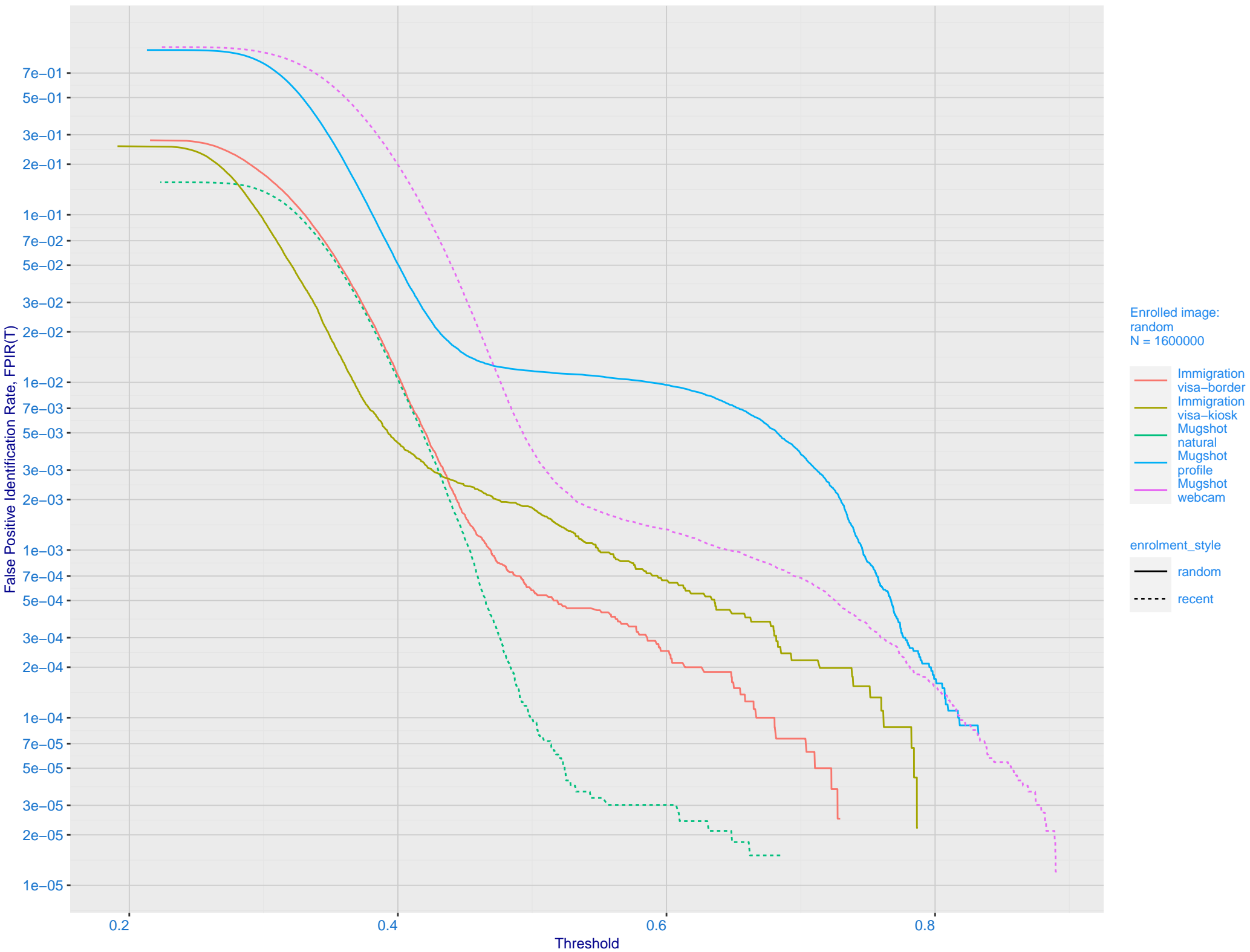
E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images

F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate
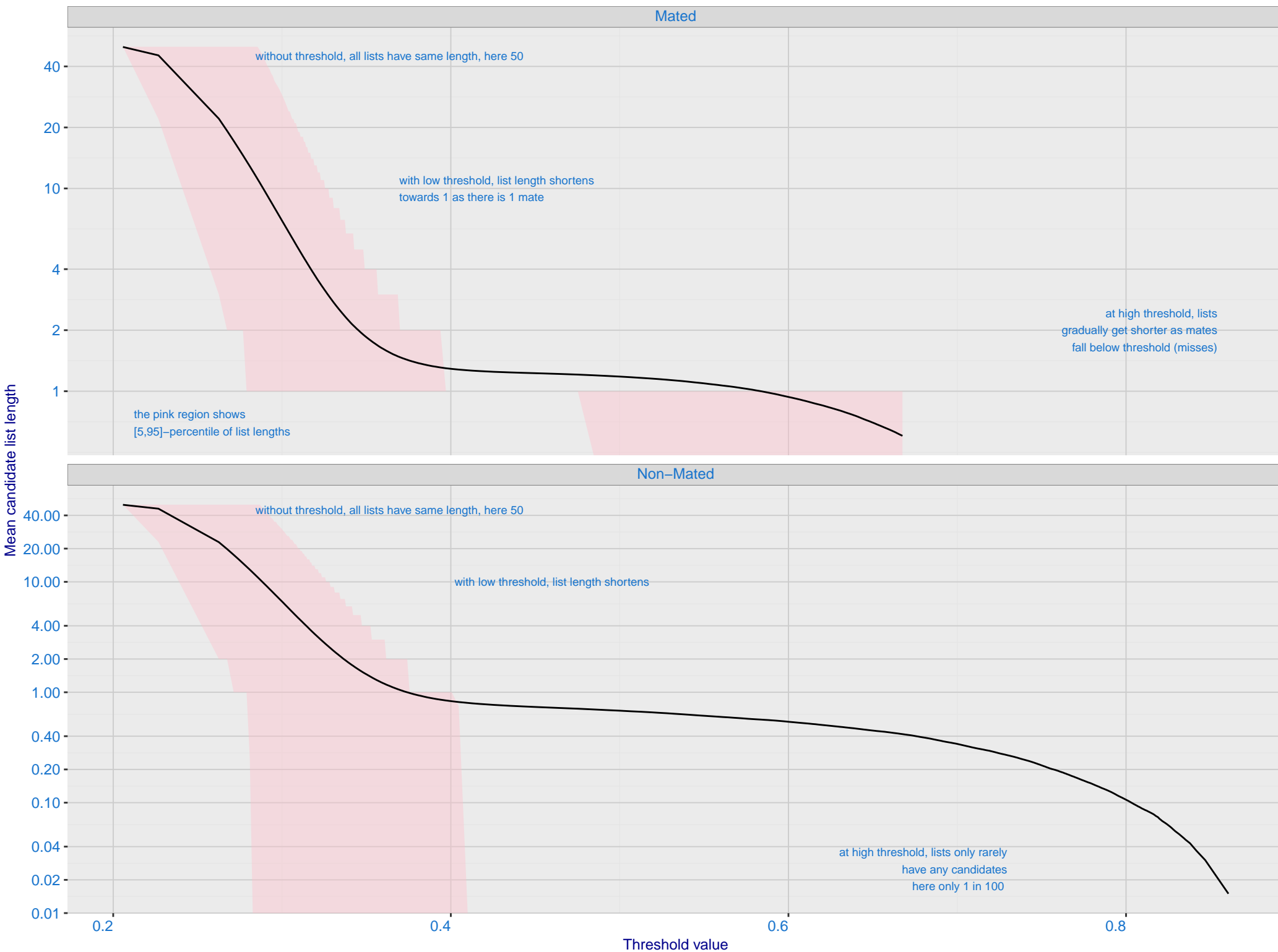
G: FPIR dependence on T by probe type for N = 1600000 subjects

H: Reduced length candidate lists for human review
Dataset is border–border with time–lapse [10,15] YRS with N = 1600000. Probes are 10–15 years later than enrollment image

I: FNIR and FPIR dependence on threshold
Dataset is border−border with time−lapse [10,15] YRS with N = 1600000. Probes are 10−15 years later than enrollment image
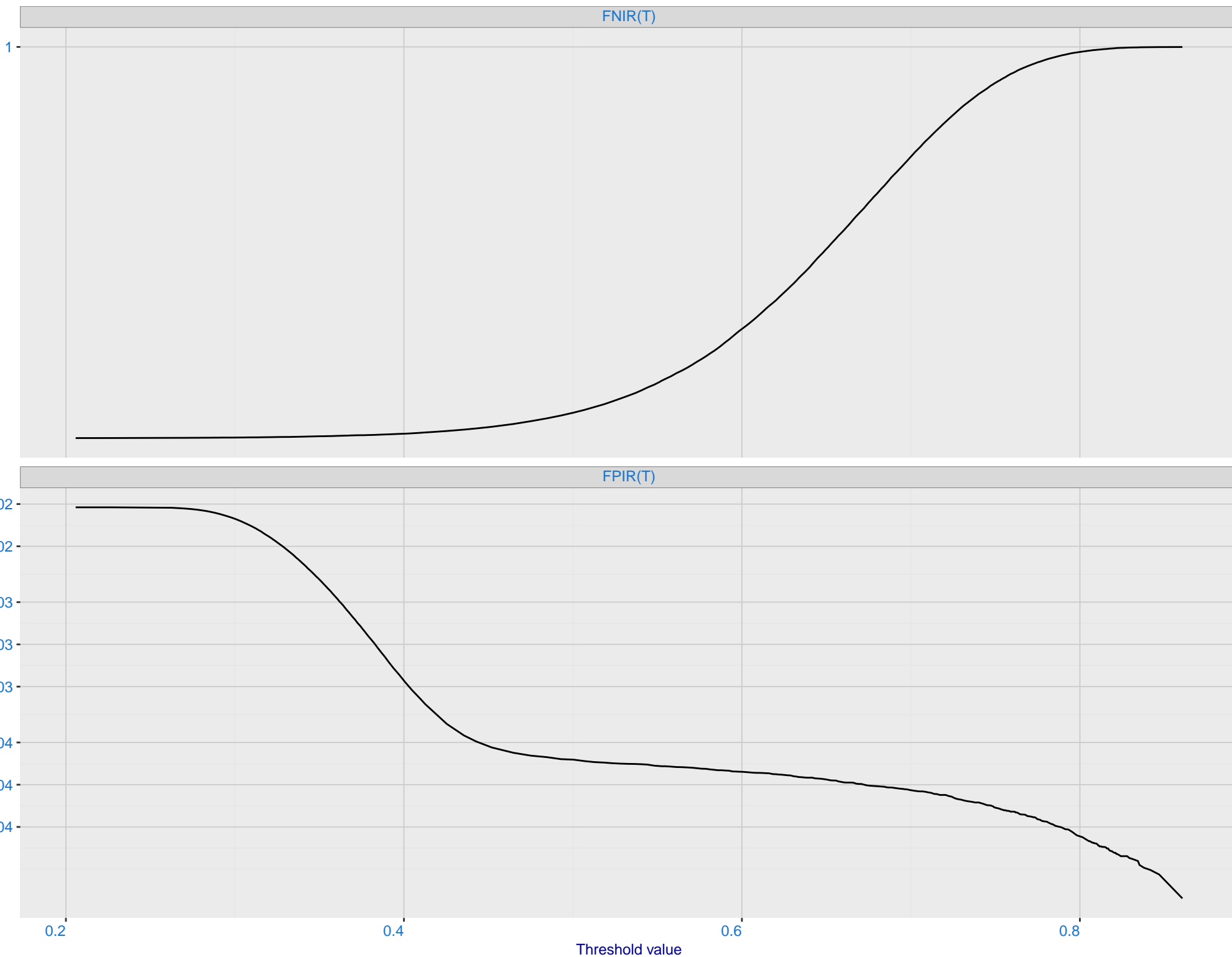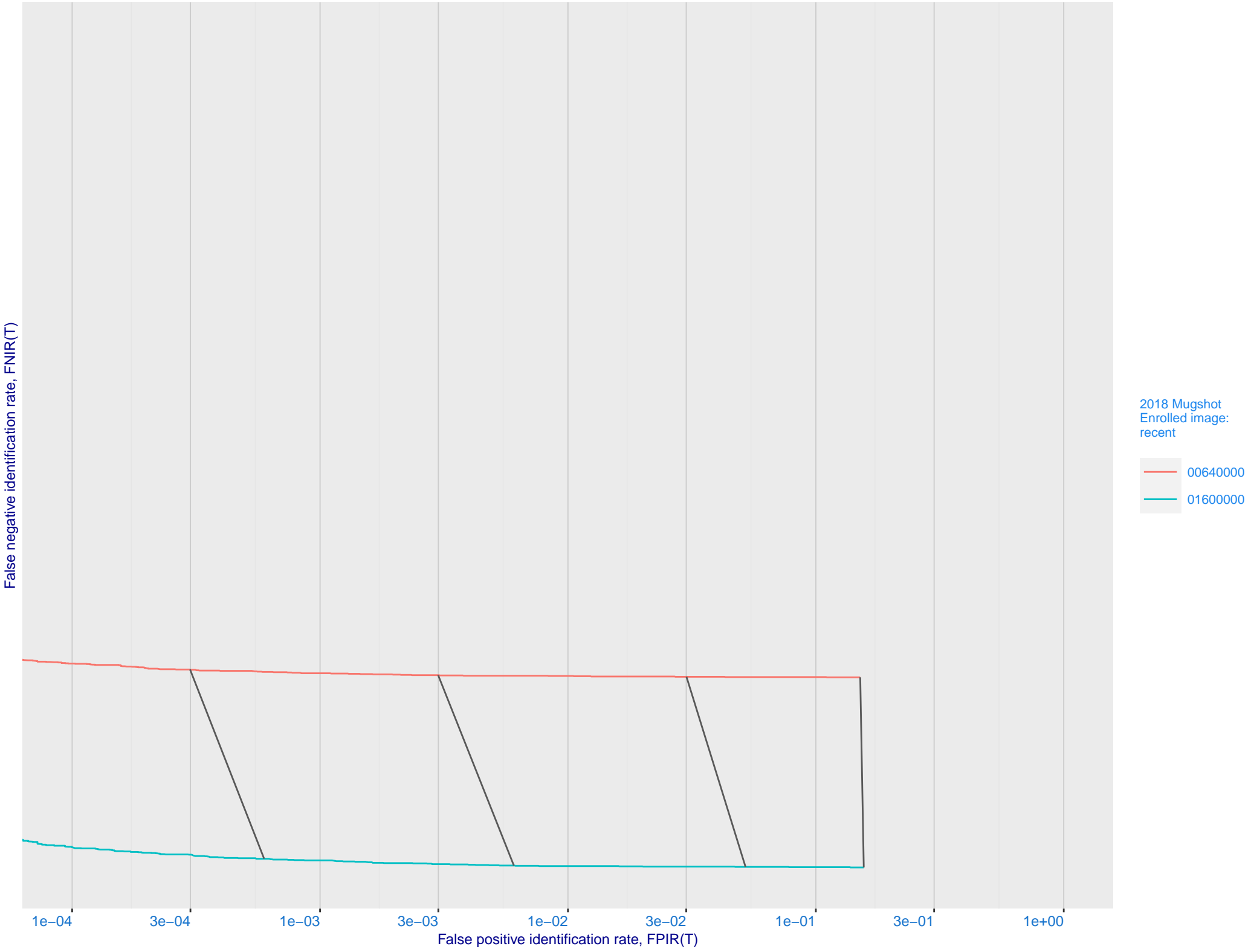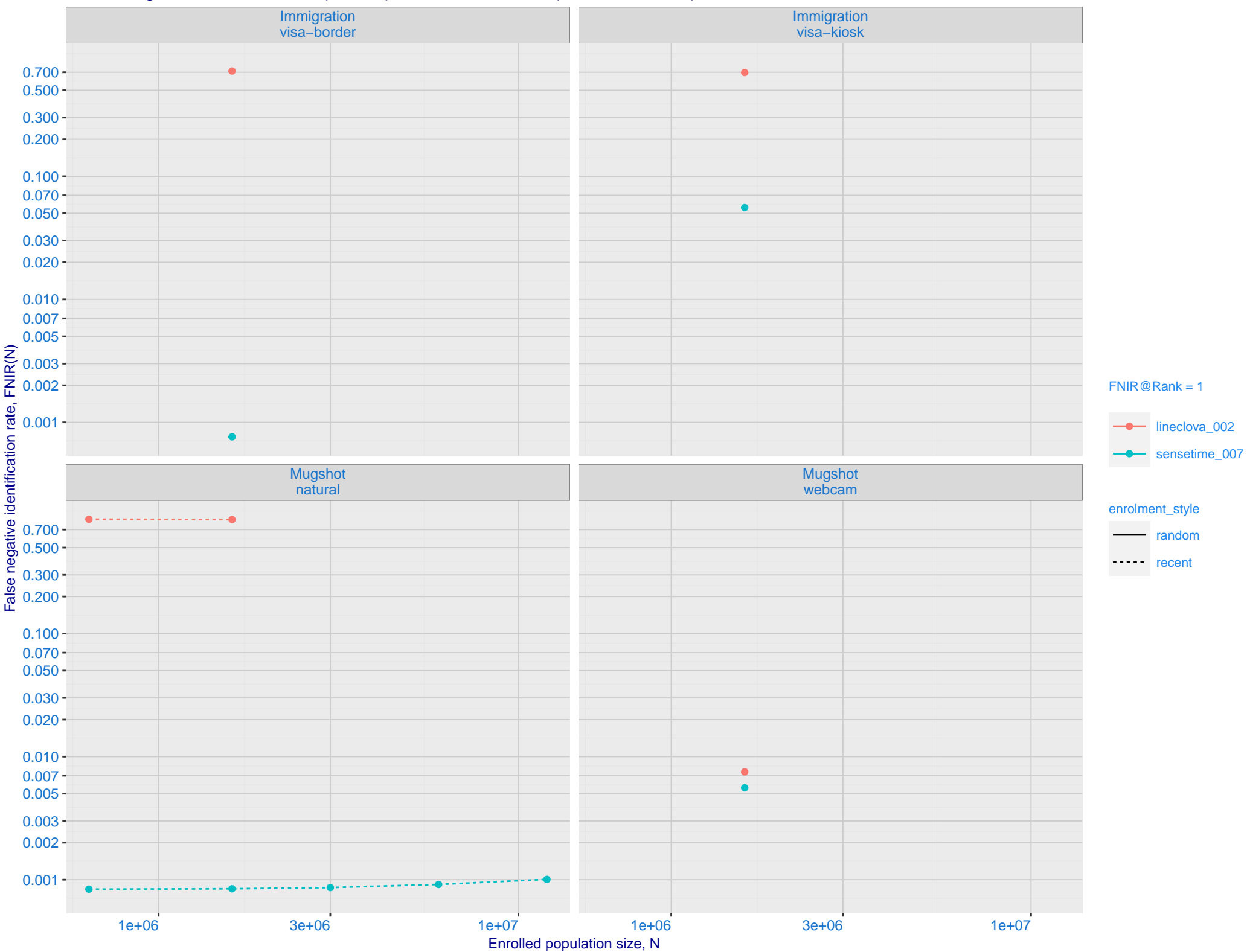
J: DET for Mugshot natural images and various N. Links connect points of equal threshold.

K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_007)

L: Investigational mode: FNIR(1600000, R, 0) by probe type
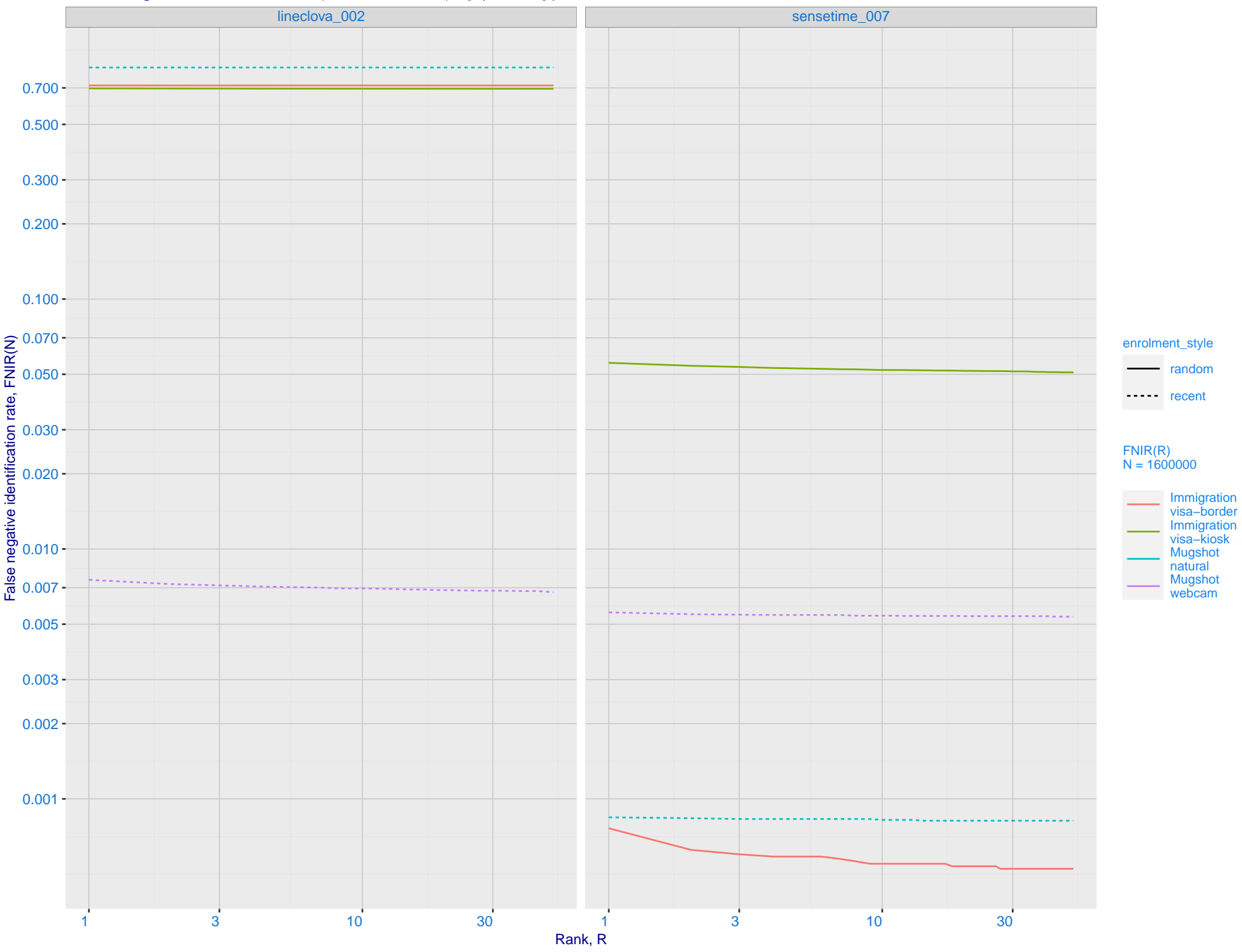
M: Template duration; search duration vs. N. The blue and pink ribbon covers 95 percent of observed measurements. The template generation time is independent of N. The log and power−law models are fit to the first two (N,T) observations
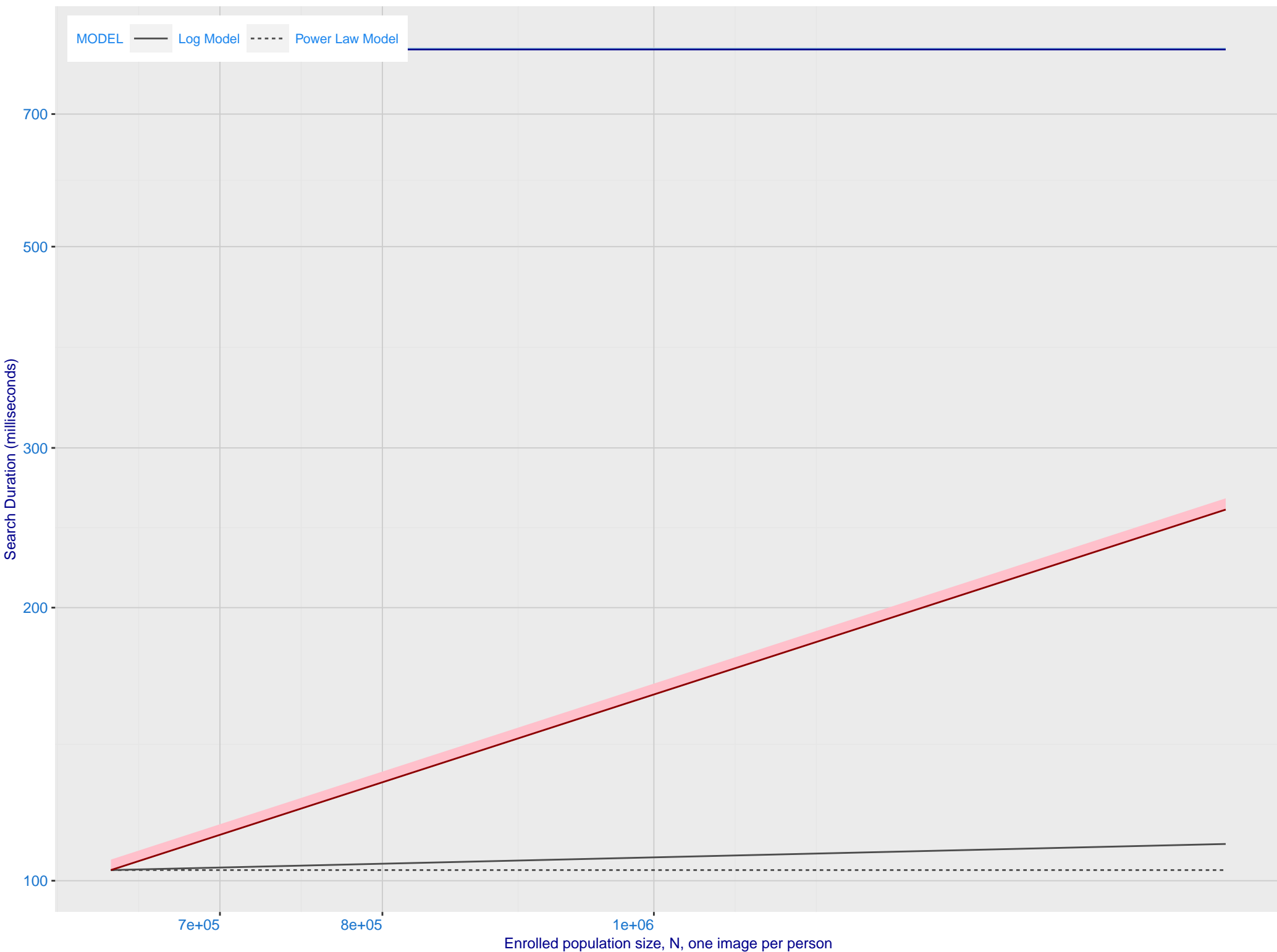
O: FNIR(T, N = 1.6 million) by sex, age and time−lapse. The top row gives investigational rank−1 miss rates.
The bottom panels give high threshold for more lights−out identification with low FPIR.
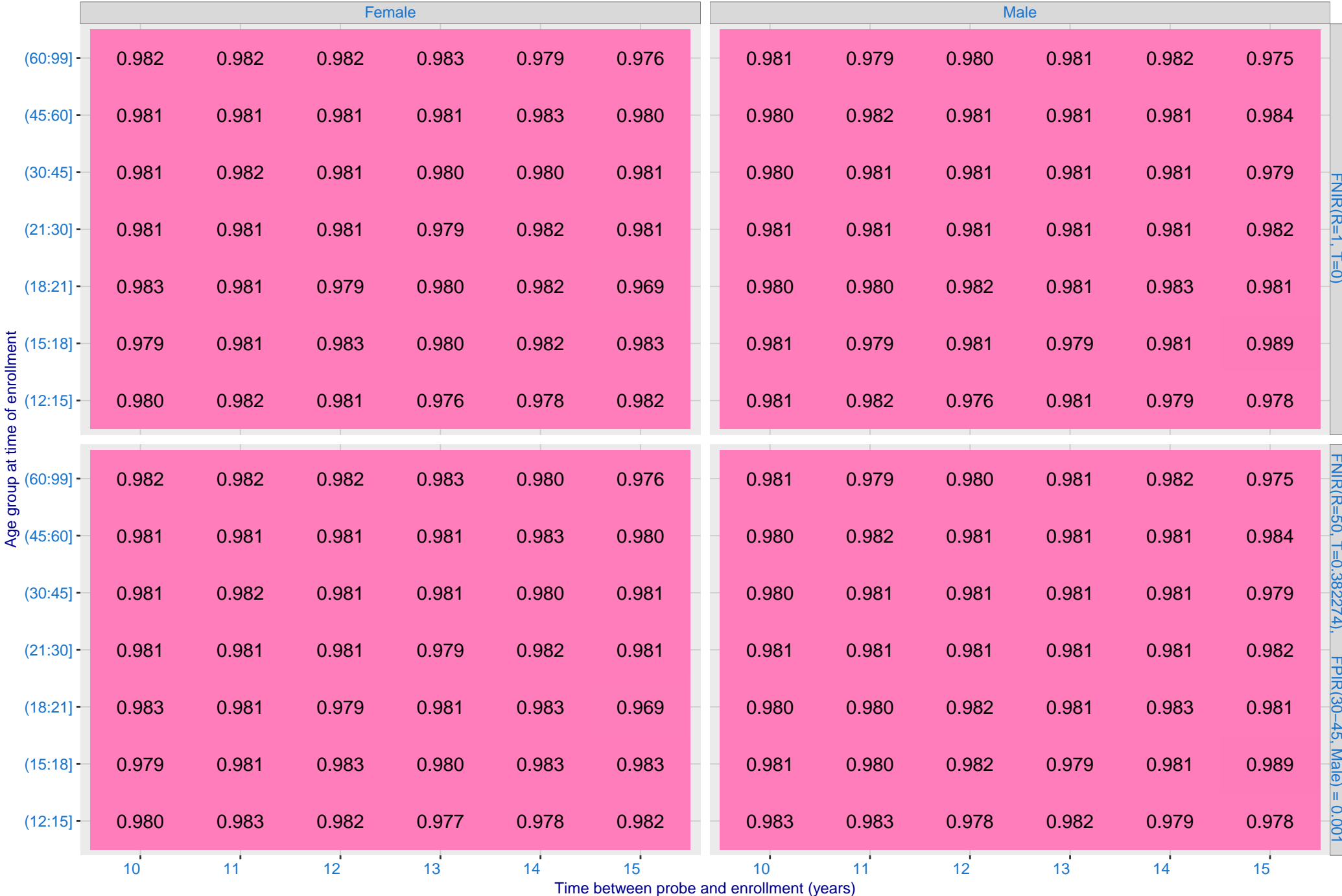
P: FPIR(N = 1.6 million) by sex and age. It is typical for false positive identification rates to be higher in women except in their teens.

Algorithm: lineclova_002, Dataset: Border−Crossing Ageing
Threshold: 0.382274 set to achive FPIR(30−45, Male) = 0.001
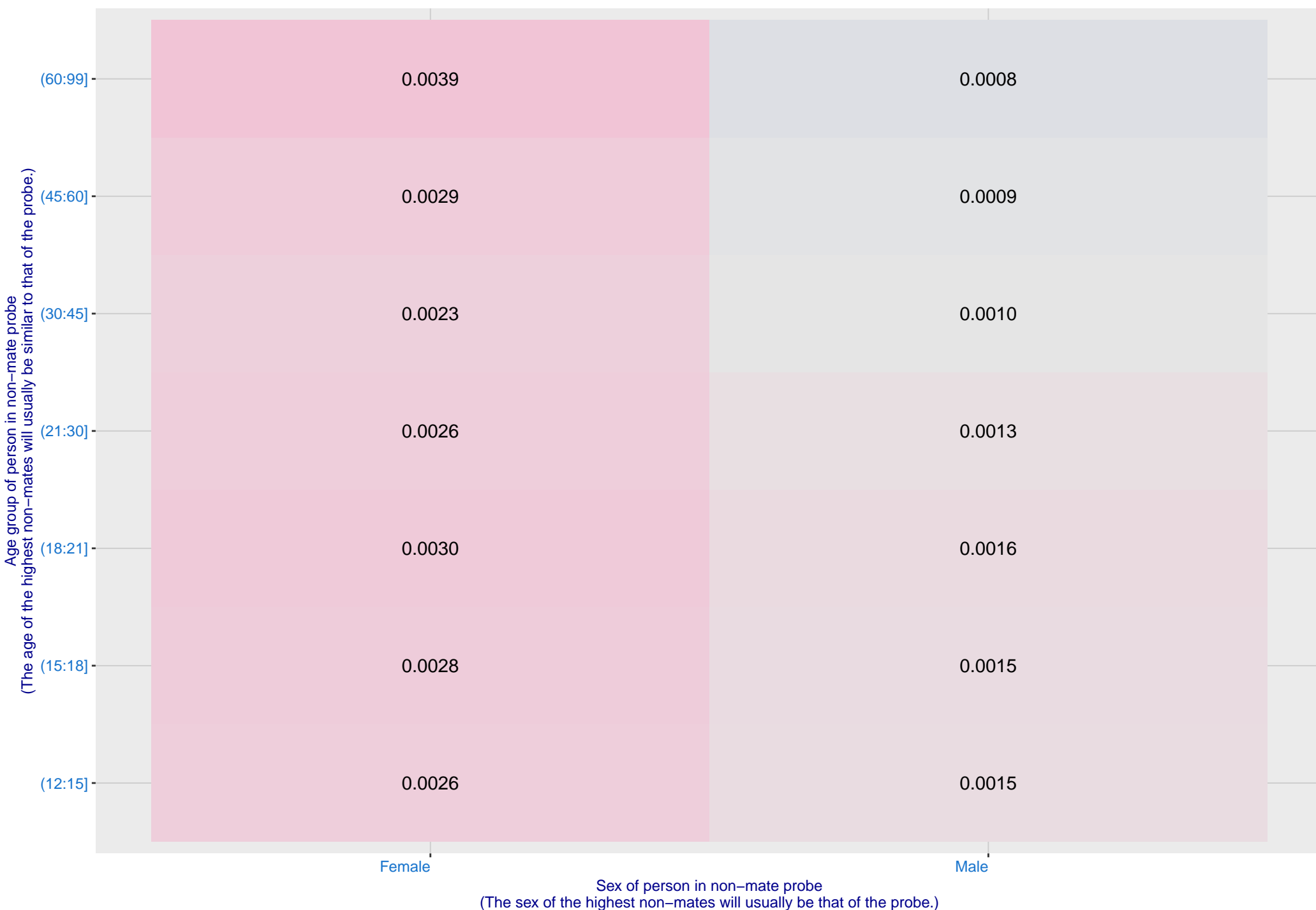
Color encodes log(FPIR)

−4   −3   −2   −1

Age group of person in non−mate probe
(The age of the highest non−mates will usually be similar to that of the probe.)

	Female	Male
(60:99]	0.0039	0.0008
(45:60]	0.0029	0.0009
(30:45]	0.0023	0.0010
(21:30]	0.0026	0.0013
(18:21]	0.0030	0.0016
(15:18]	0.0028	0.0015
(12:15]	0.0026	0.0015

Sex of person in non−mate probe
(The sex of the highest non−mates will usually be that of the probe.)

Q: Identification FNIR(N, T, L+1) and Investigational FNIR(N, 0, R) under ageing

Dataset: 2018 Mugshot   N = 3068801

Legend:
- (00,02]
- (02,04]
- (04,06]
- (06,08]
- (08,10]
- (10,12]
- (12,14]
- (14,18]

FPIR | Rank

cloudwalk_hr_000

False negative identification rate (FNIR)

False positive identification rate, FPIR   or   Rank, R