

A: Datasheet

Algorithm: psl_002

Developer: Panasonic R+D Center Singapore

Submission Date: 2024_07_26

Template size: 4148 bytes

Template time (2.5 percentile): 1298 msec

Template time (median): 1300 msec

Template time (97.5 percentile): 1310 msec

Investigation:

Frontal mugshot ranking 2 (out of 509) -- FNIR(1600000, 0, 1) = 0.0008 vs. lowest 0.0008 from qazsmartvisionai_001

Mugshot webcam ranking 1 (out of 471) -- FNIR(1600000, 0, 1) = 0.0051

Mugshot profile ranking 3 (out of 440) -- FNIR(1600000, 0, 1) = 0.0517 vs. lowest 0.0504 from qazsmartvisionai_001

Immigration visa-border ranking 3 (out of 398) -- FNIR(1600000, 0, 1) = 0.0006 vs. lowest 0.0005 from psl_001

Immigration visa-kiosk ranking 10 (out of 342) -- FNIR(1600000, 0, 1) = 0.0415 vs. lowest 0.0357 from qazsmartvisionai_001

Identification:

Frontal mugshot ranking 8 (out of 509) -- FNIR(1600000, T, L+1) = 0.0011, FPIR=0.003000 vs. lowest 0.0009 from qazsmartvisionai_001

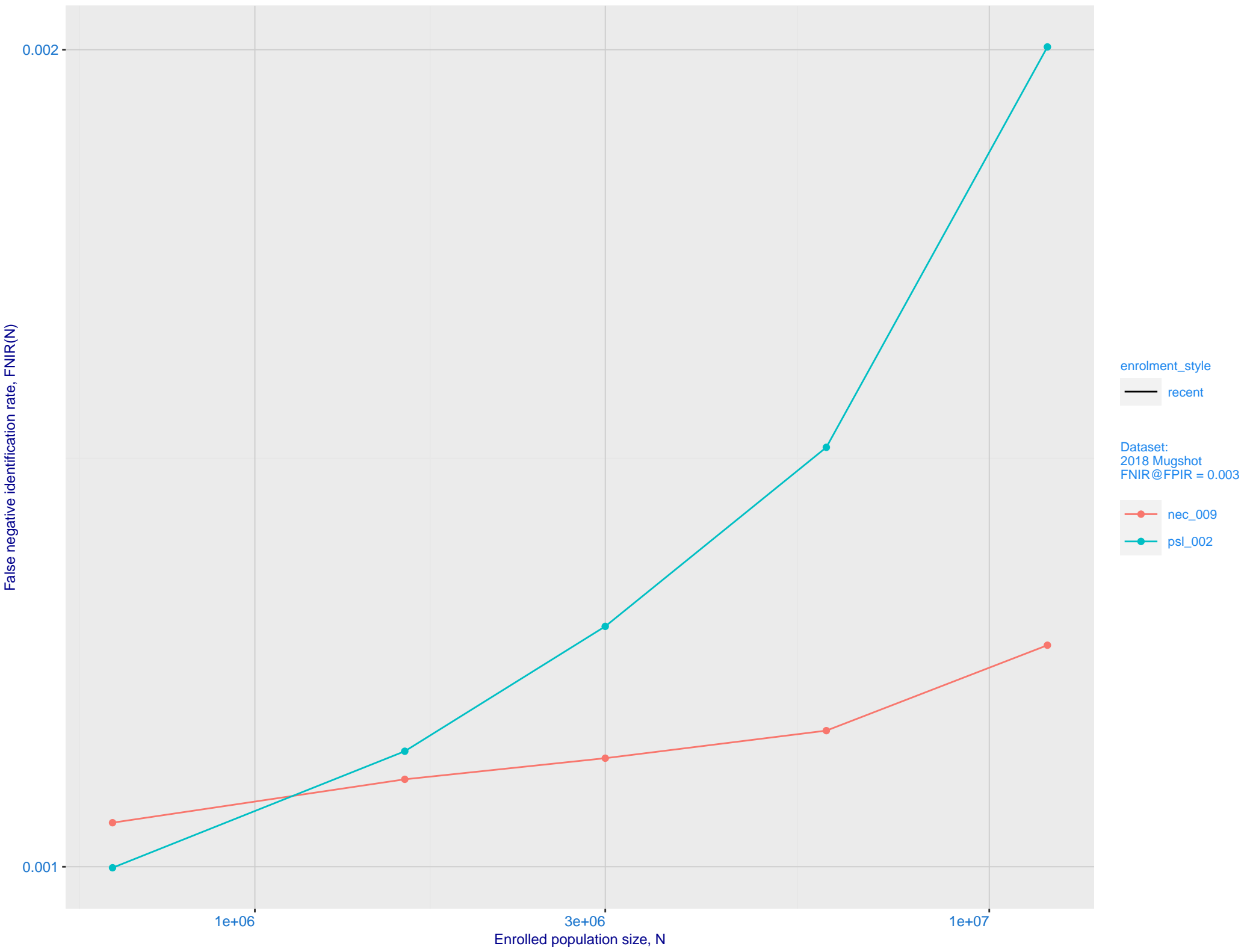
Mugshot webcam ranking 16 (out of 469) -- FNIR(1600000, T, L+1) = 0.0090, FPIR=0.003000 vs. lowest 0.0065 from sensetime_009

Mugshot profile ranking 11 (out of 439) -- FNIR(1600000, T, L+1) = 0.0826, FPIR=0.003000 vs. lowest 0.0591 from cloudwalk_mt_002

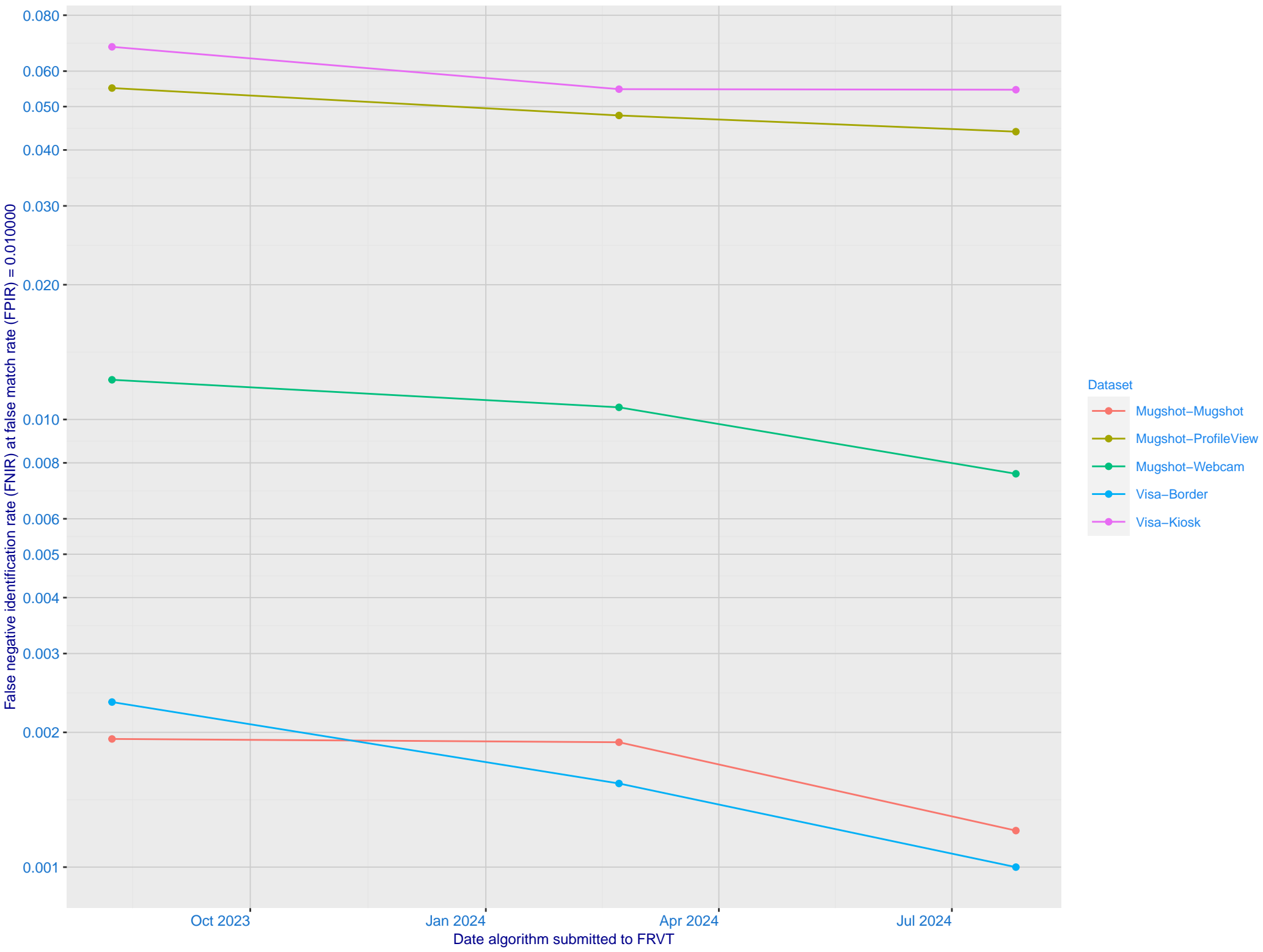
Immigration visa-border ranking 10 (out of 397) -- FNIR(1600000, T, L+1) = 0.0014, FPIR=0.003000 vs. lowest 0.0009 from cloudwalk_mt_002

Immigration visa-kiosk ranking 18 (out of 342) -- FNIR(1600000, T, L+1) = 0.0620, FPIR=0.003000 vs. lowest 0.0460 from nec_009

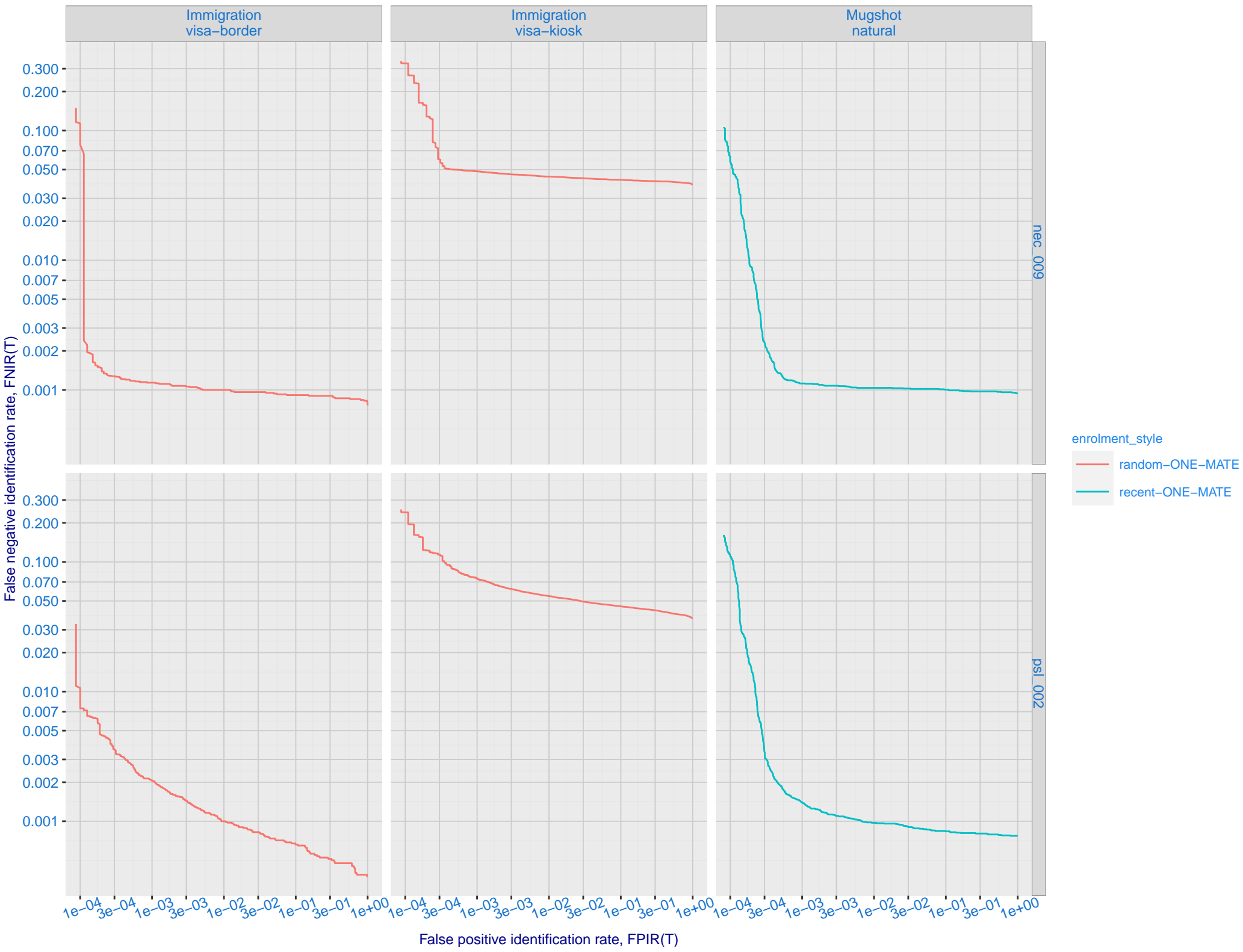
B: Mugshot natural images, identification mode: FNIR(N, L+1, T) vs. most accurate (nec_009)



C: Evolution of accuracy for PSL algorithms on three datasets 2018 – present

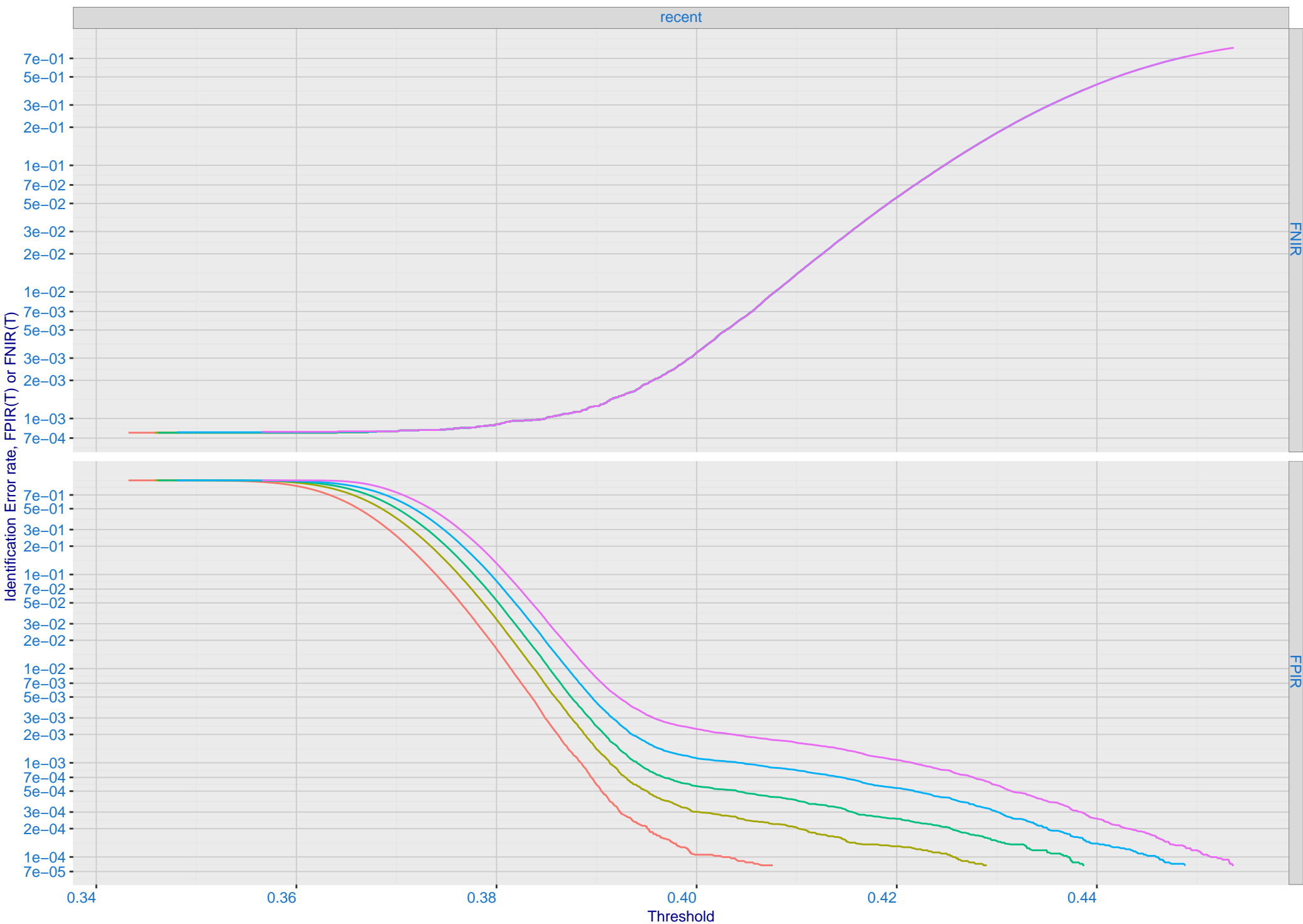


D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals

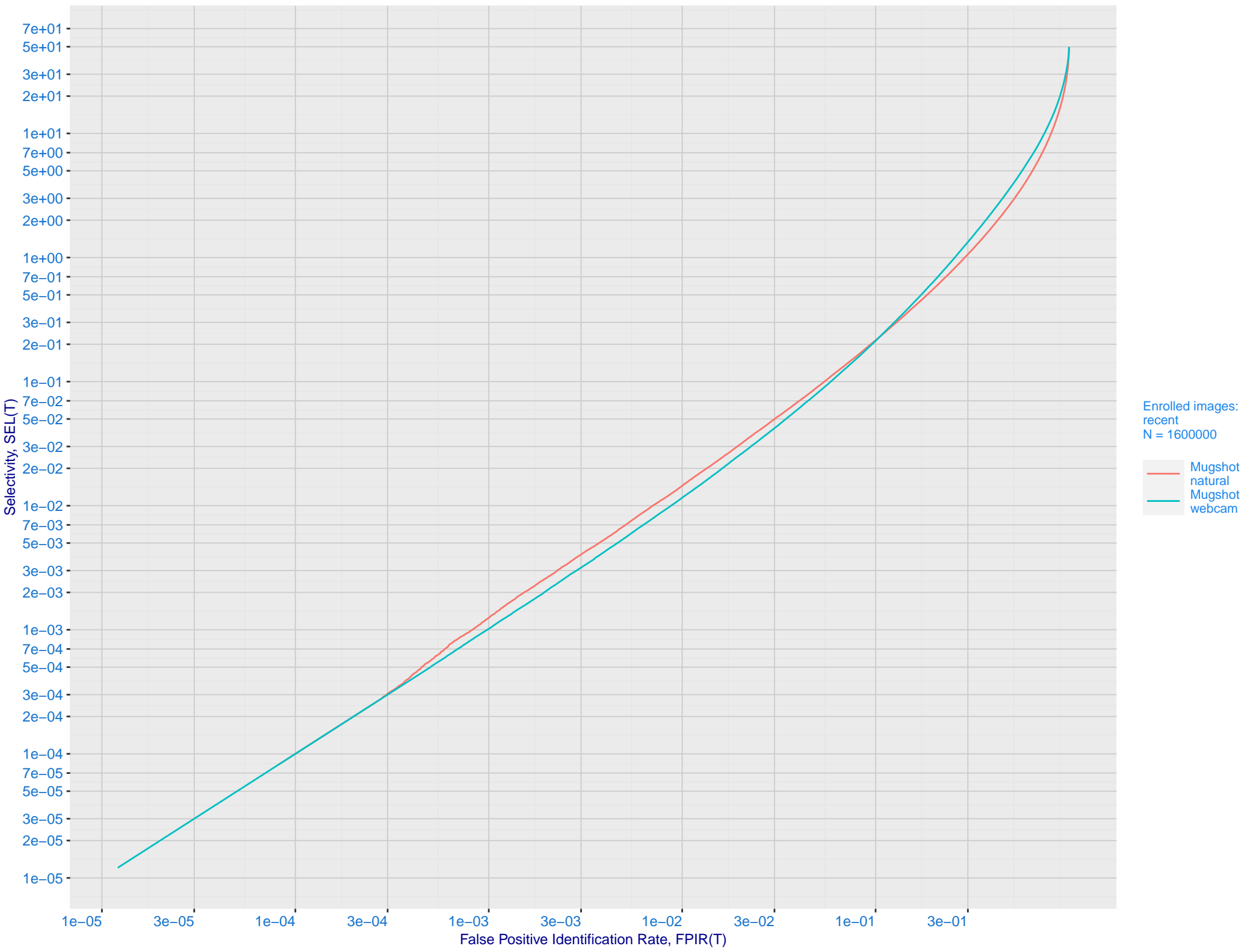


E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images

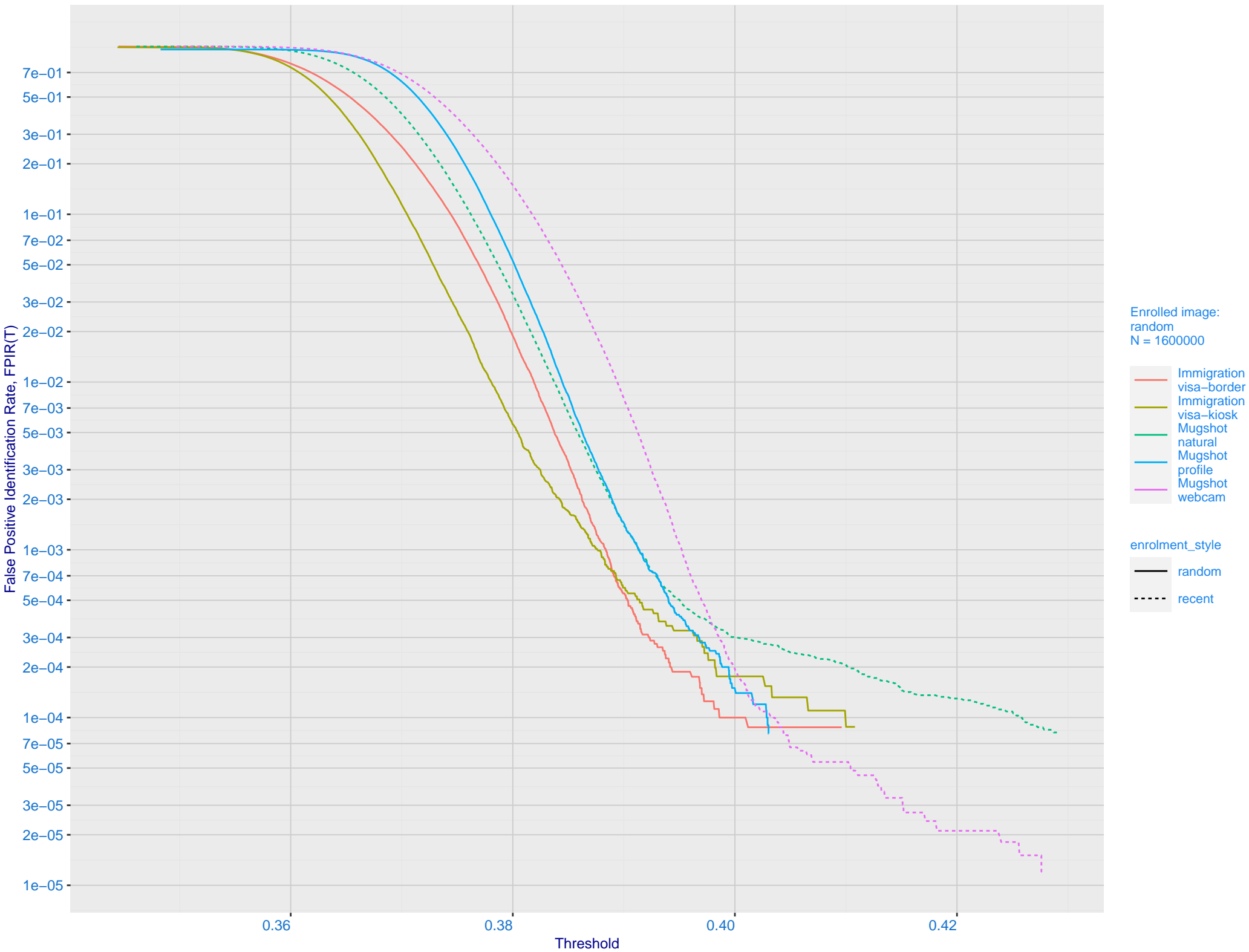
N 00640000 01600000 03000000 06000000 12000000



F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate

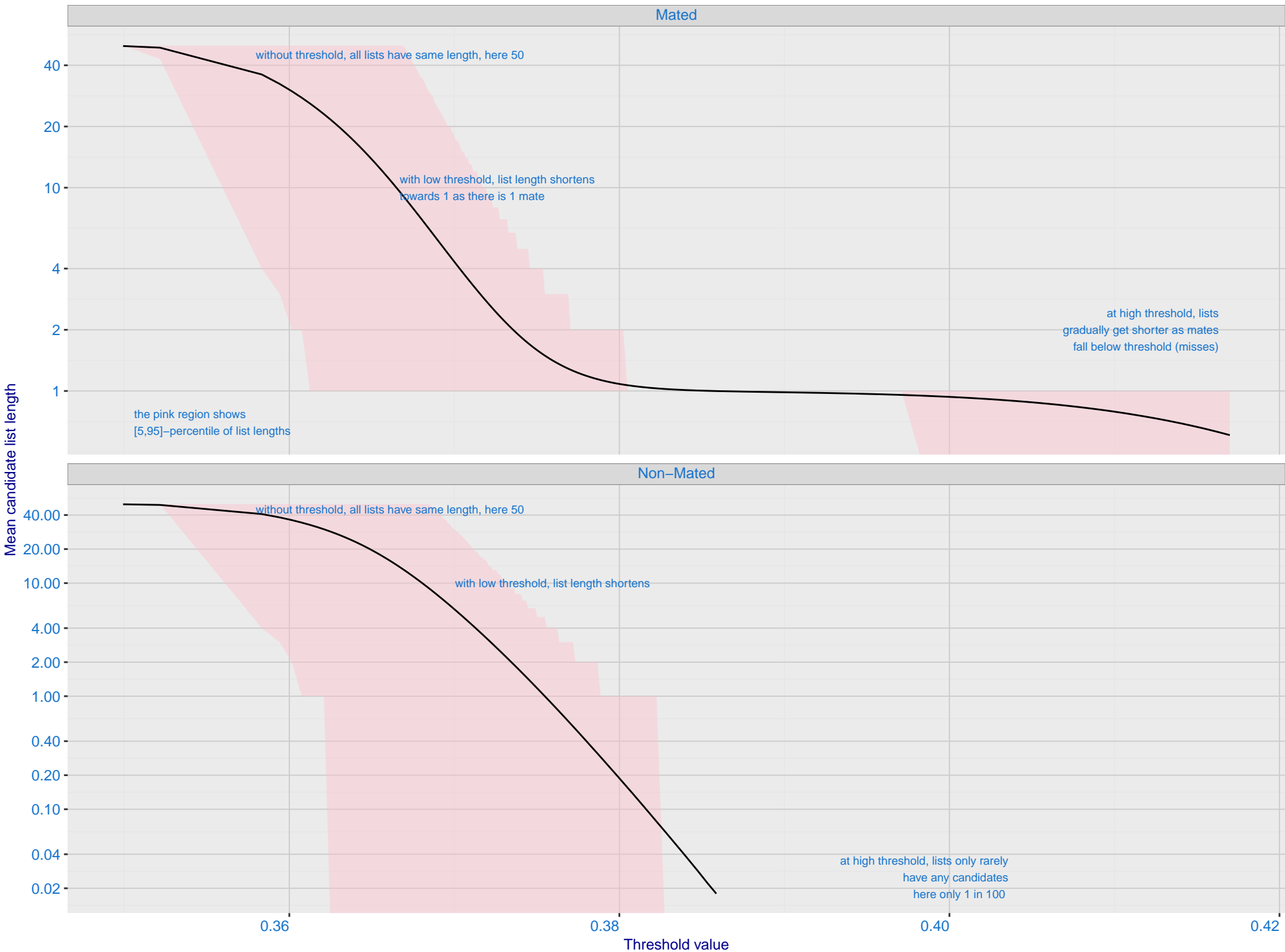


G: FPIR dependence on T by probe type for N = 1600000 subjects



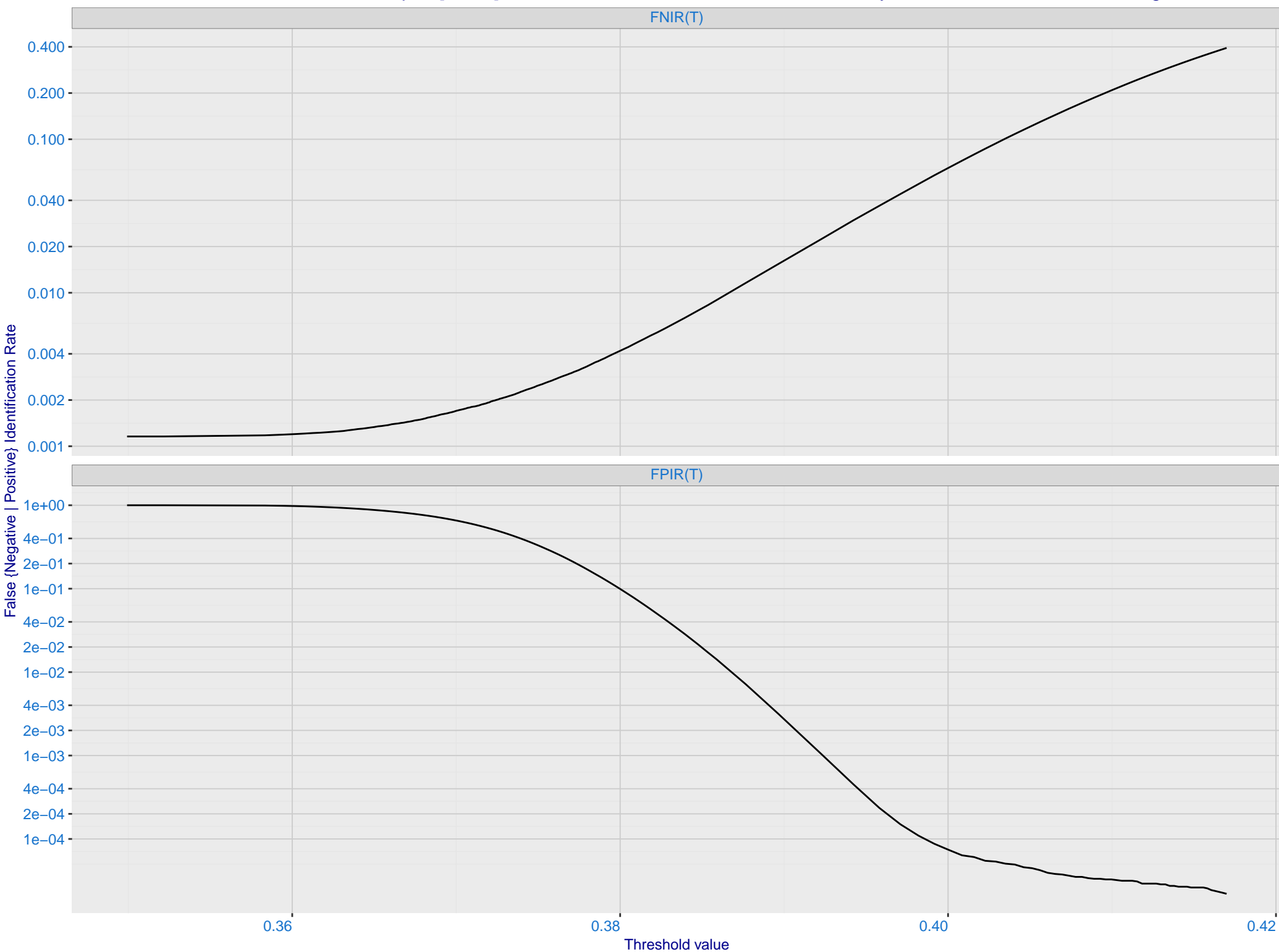
H: Reduced length candidate lists for human review

Dataset is border–border with time–lapse [10,15] YRS with N = 1600000. Probes are 10–15 years later than enrollment image

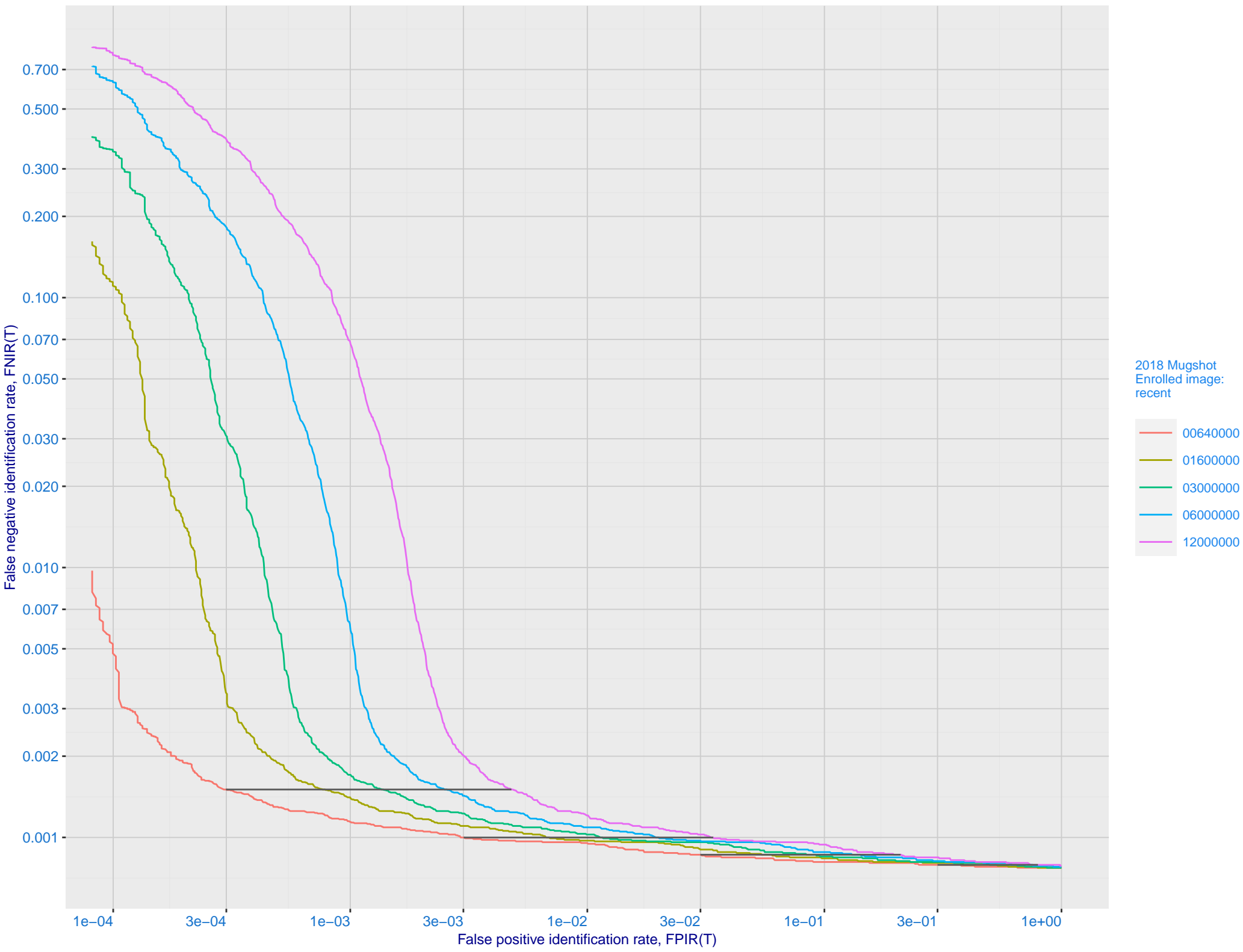


I: FNIR and FPIR dependence on threshold

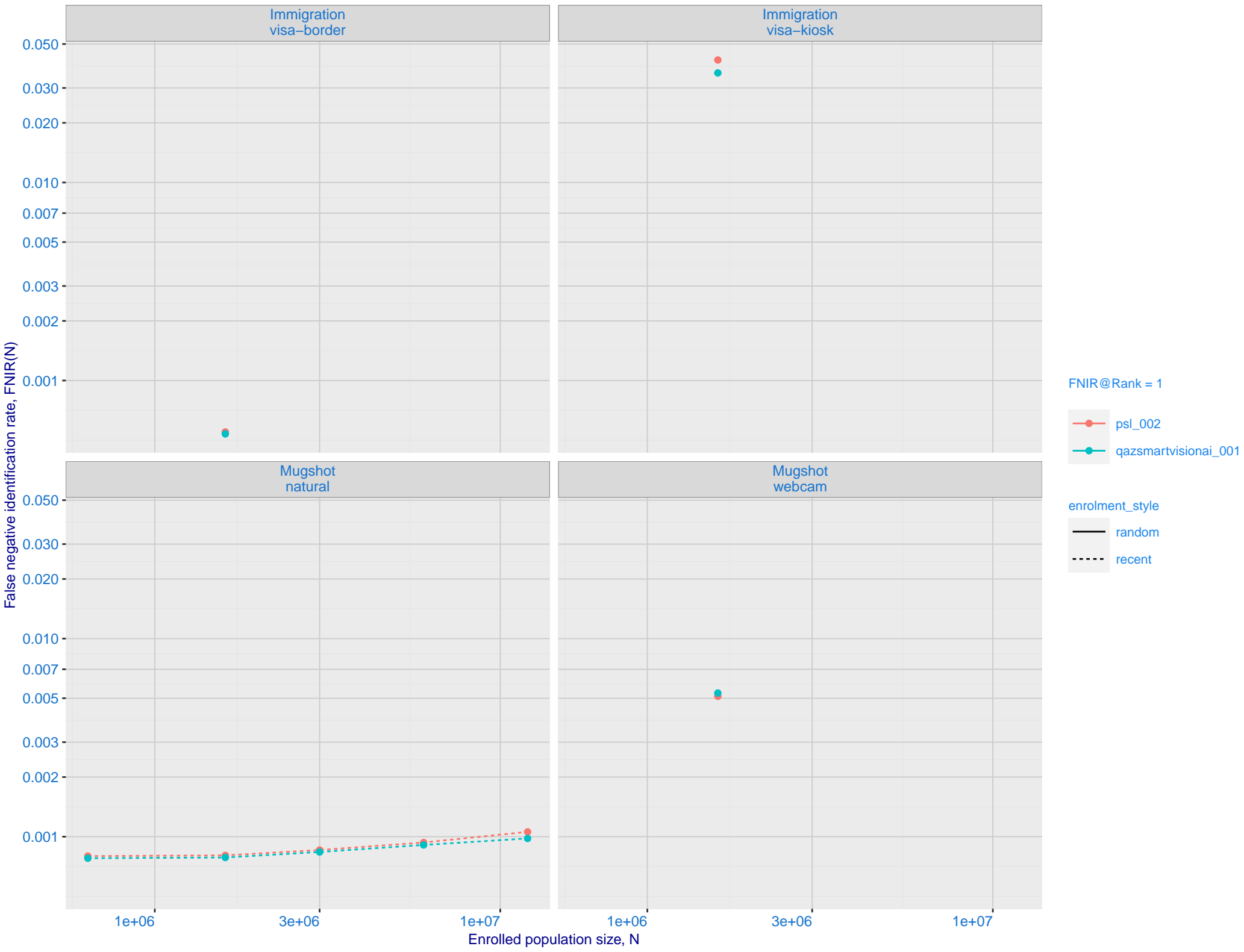
Dataset is border-border with time-lapse [10,15] YRS with N = 1600000. Probes are 10-15 years later than enrollment image



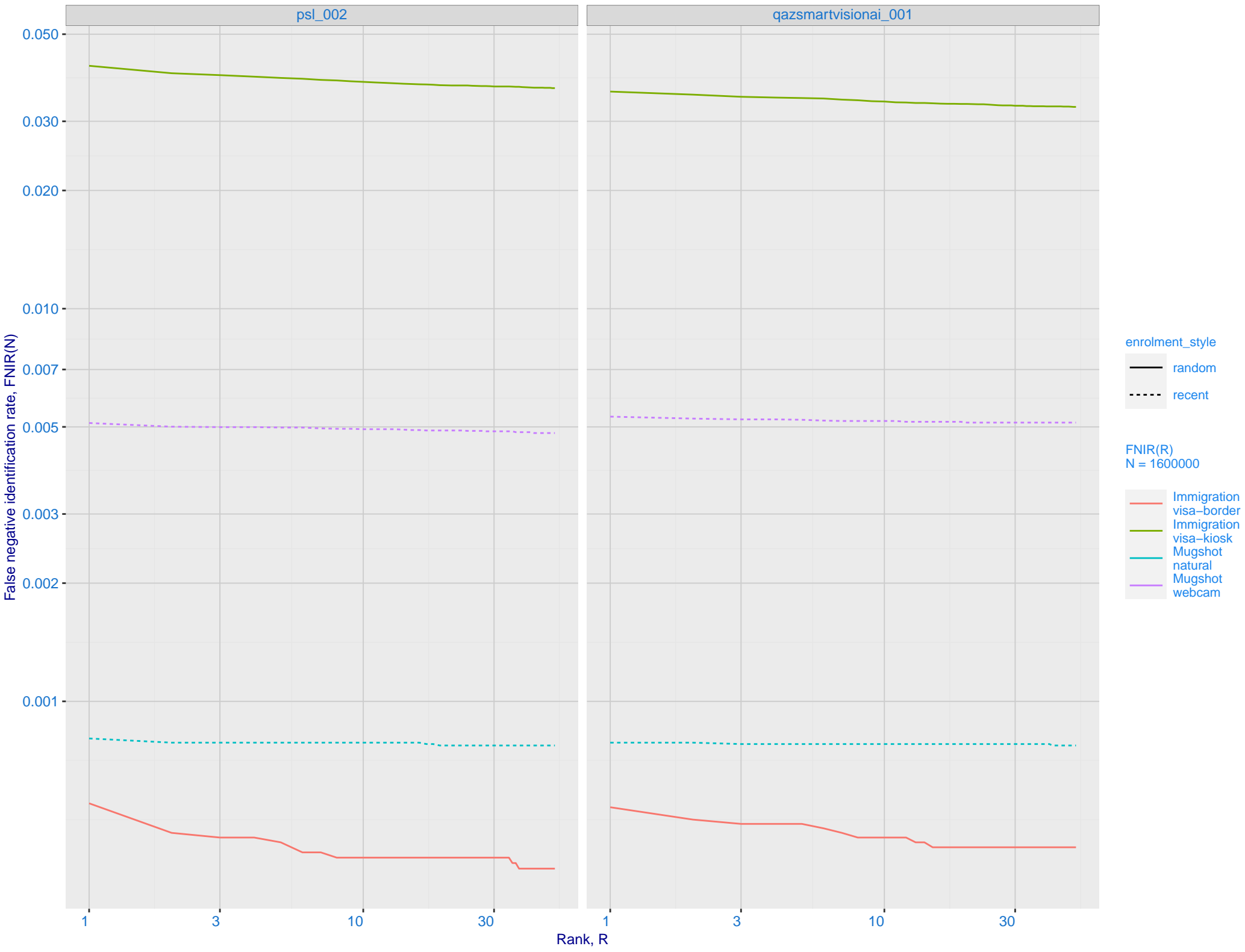
J: DET for Mugshot natural images and various N. Links connect points of equal threshold.



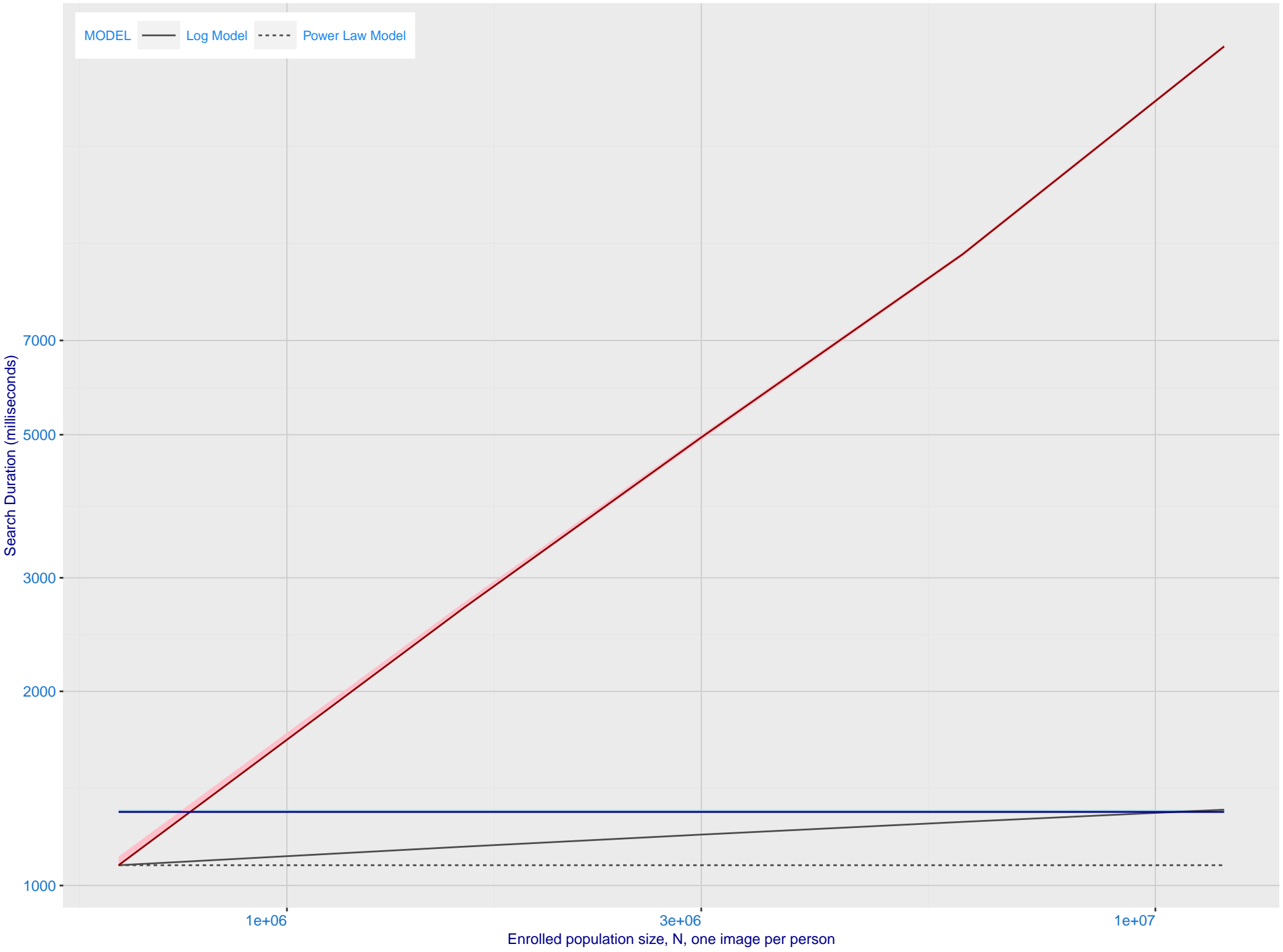
K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (qazsmartvisionai_001)



L: Investigational mode: FNIR(1600000, R, 0) by probe type

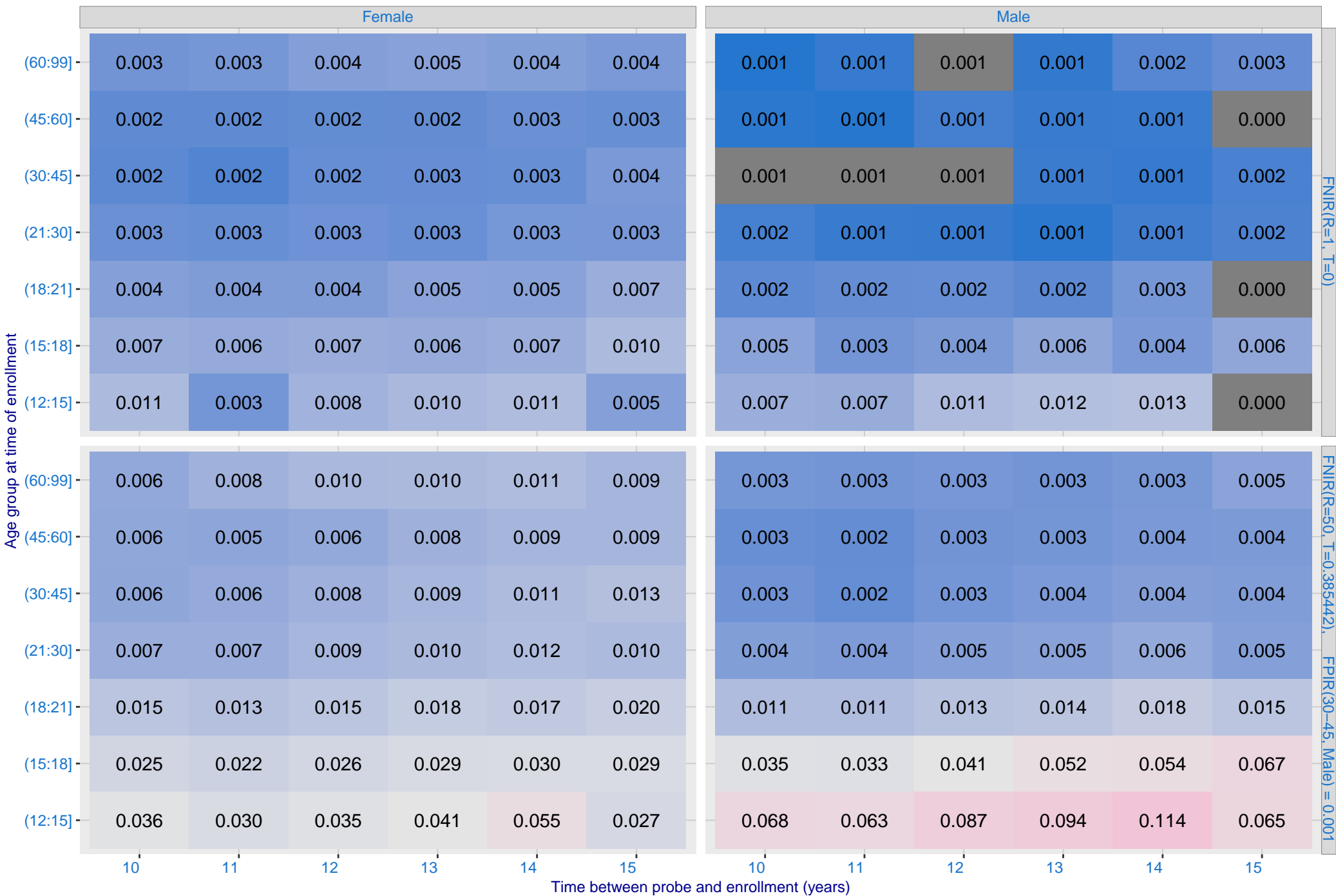
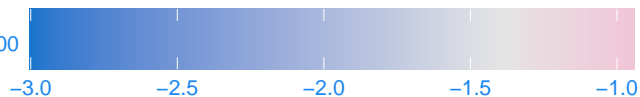


M: Template duration; search duration vs. N. The blue and pink ribbon covers 95 percent of observed measurements. The template generation time is independent of N. The log and power-law models are fit to the first two (N,T) observations



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.

Algorithm: psl_002, Dataset: Border-Crossing Ageing N = 1600000
Text encodes FNIR, Color encodes log(FNIR)



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.

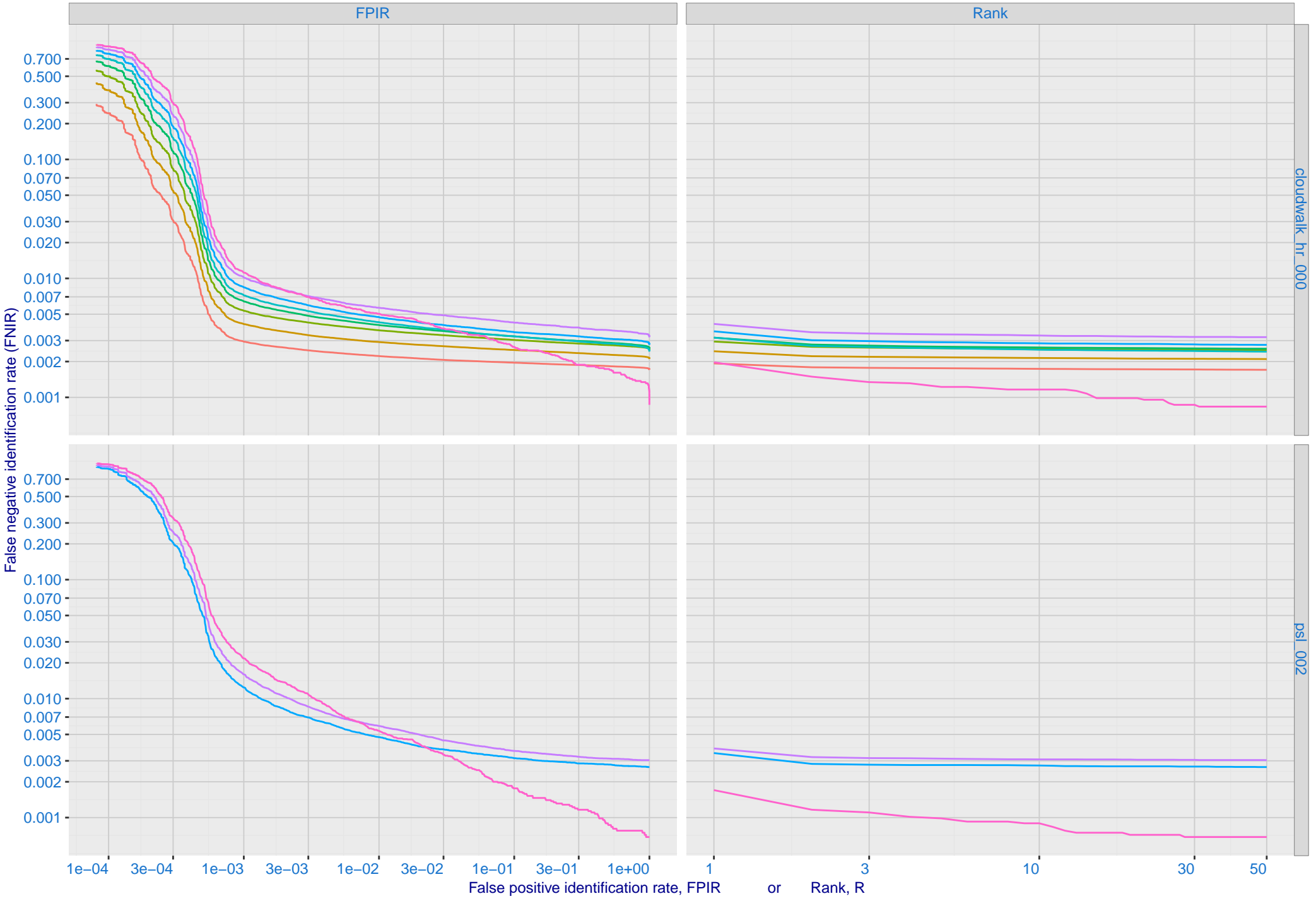
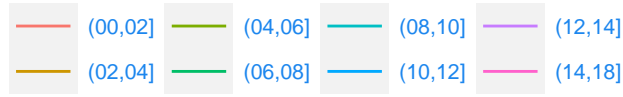
Algorithm: psl_002, Dataset: Border-Crossing Ageing
Threshold: 0.385442 set to achieve FPIR(30-45, Male) = 0.001

Color encodes log(FPIR)



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

Dataset: 2018 Mugshot N = 3068801



R: Decline of genuine scores with ageing, with some eventually dropping below typical thresholds shown by the horizontal lines

