

A: Datasheet

Algorithm: recognito_002

Developer: Recognito

Submission Date: 2023_11_09

Template size: 2564 bytes

Template time (2.5 percentile): 1074 msec

Template time (median): 1075 msec

Template time (97.5 percentile): 1082 msec

Investigation:

Frontal mugshot ranking 8 (out of 449) -- FNIR(1600000, 0, 1) = 0.0009 vs. lowest 0.0008 from intema_001

Mugshot webcam ranking 7 (out of 411) -- FNIR(1600000, 0, 1) = 0.0061 vs. lowest 0.0054 from sensetime_009

Mugshot profile ranking 23 (out of 380) -- FNIR(1600000, 0, 1) = 0.0601 vs. lowest 0.0517 from sensetime_009

Immigration visa-border ranking 4 (out of 338) -- FNIR(1600000, 0, 1) = 0.0007 vs. lowest 0.0006 from cloudwalk_mt_002

Immigration visa-kiosk ranking 3 (out of 282) -- FNIR(1600000, 0, 1) = 0.0405 vs. lowest 0.0387 from cloudwalk_mt_002

Identification:

Frontal mugshot ranking 3 (out of 449) -- FNIR(1600000, T, L+1) = 0.0013, FPIR=0.001000 vs. lowest 0.0011 from idemia_010

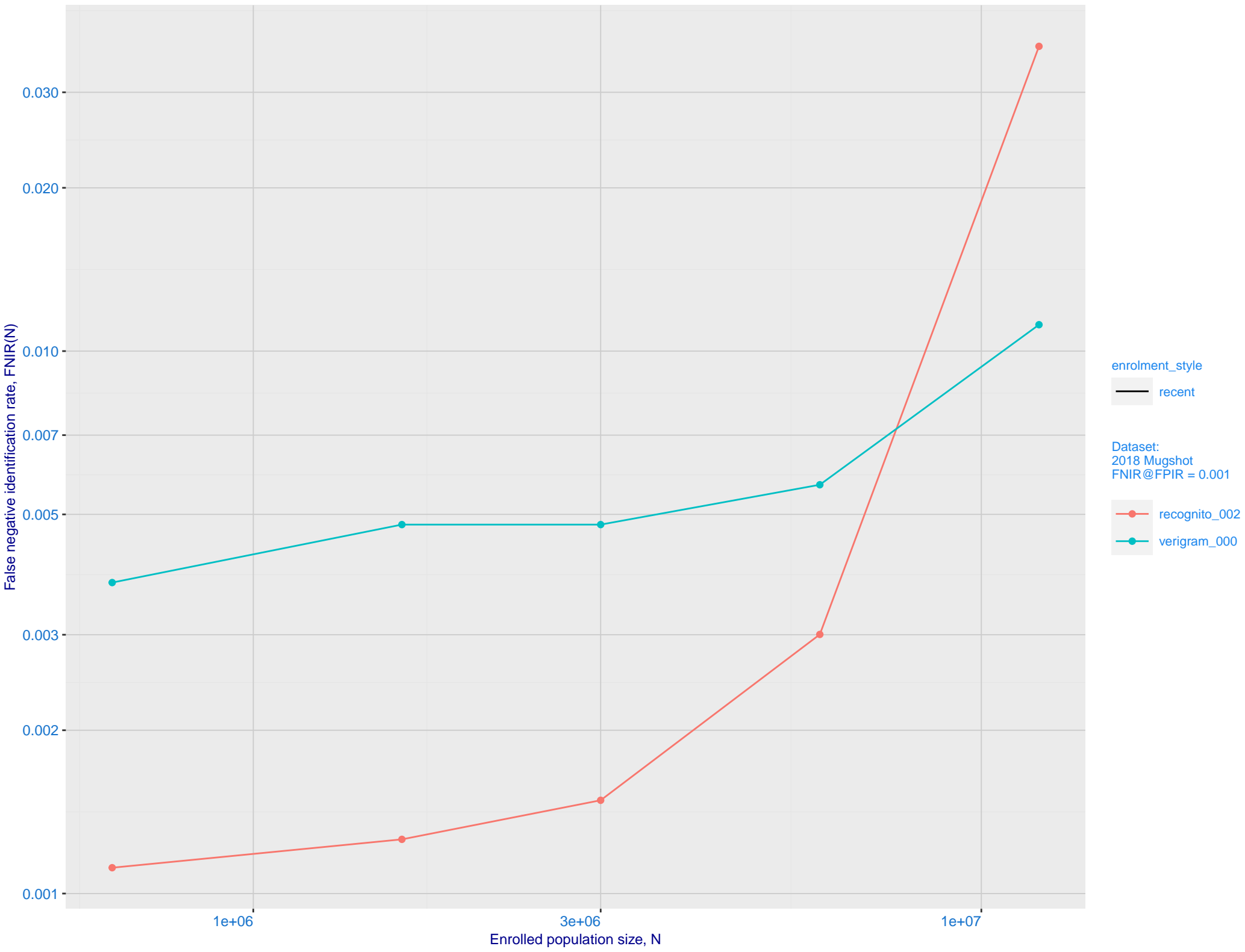
Mugshot webcam ranking 4 (out of 409) -- FNIR(1600000, T, L+1) = 0.0084, FPIR=0.001000 vs. lowest 0.0072 from sensetime_009

Mugshot profile ranking 11 (out of 379) -- FNIR(1600000, T, L+1) = 0.1451, FPIR=0.001000 vs. lowest 0.0634 from cloudwalk_mt_002

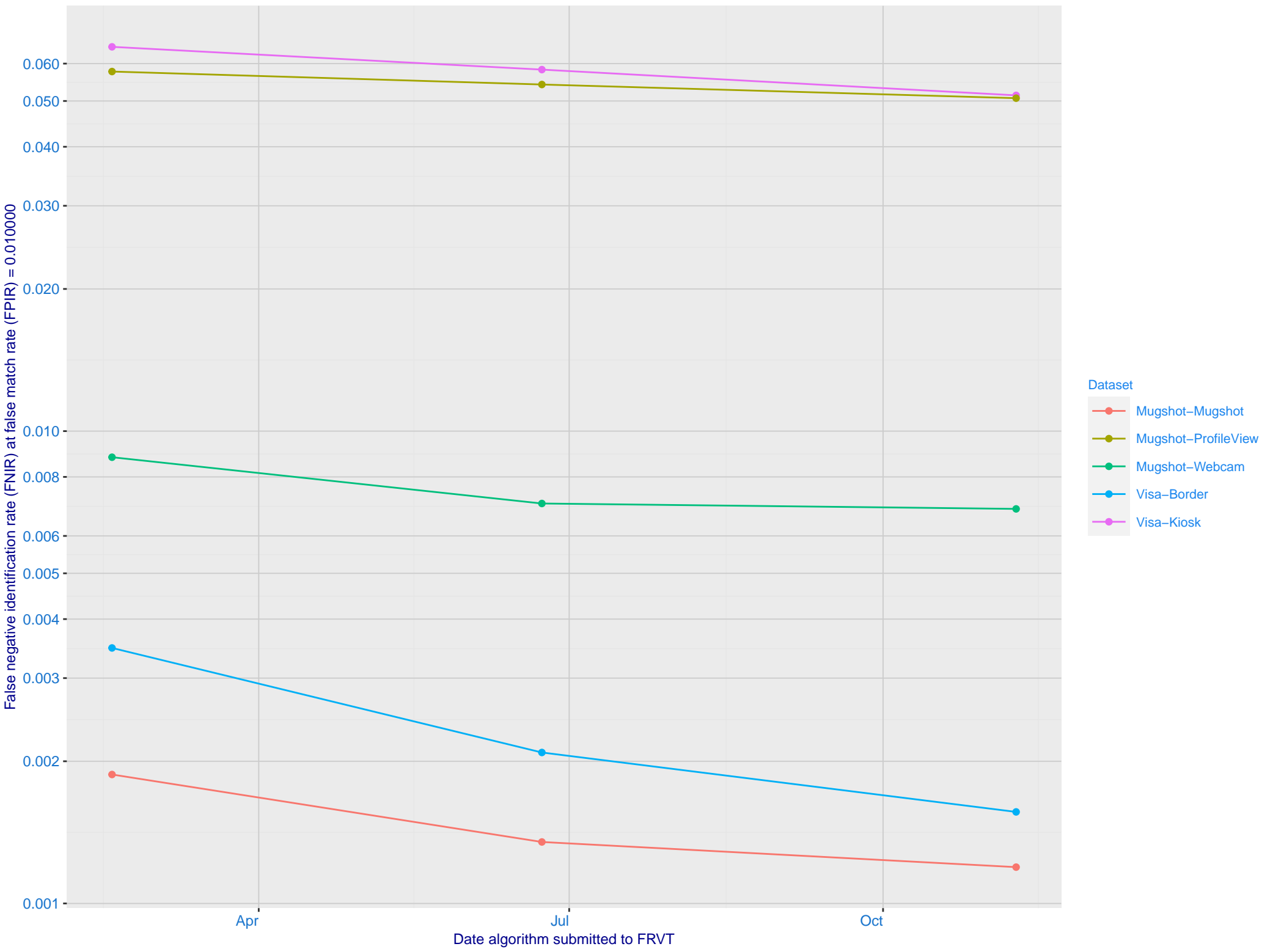
Immigration visa-border ranking 13 (out of 337) -- FNIR(1600000, T, L+1) = 0.0029, FPIR=0.001000 vs. lowest 0.0010 from cloudwalk_mt_002

Immigration visa-kiosk ranking 9 (out of 282) -- FNIR(1600000, T, L+1) = 0.0640, FPIR=0.001000 vs. lowest 0.0517 from cloudwalk_mt_002

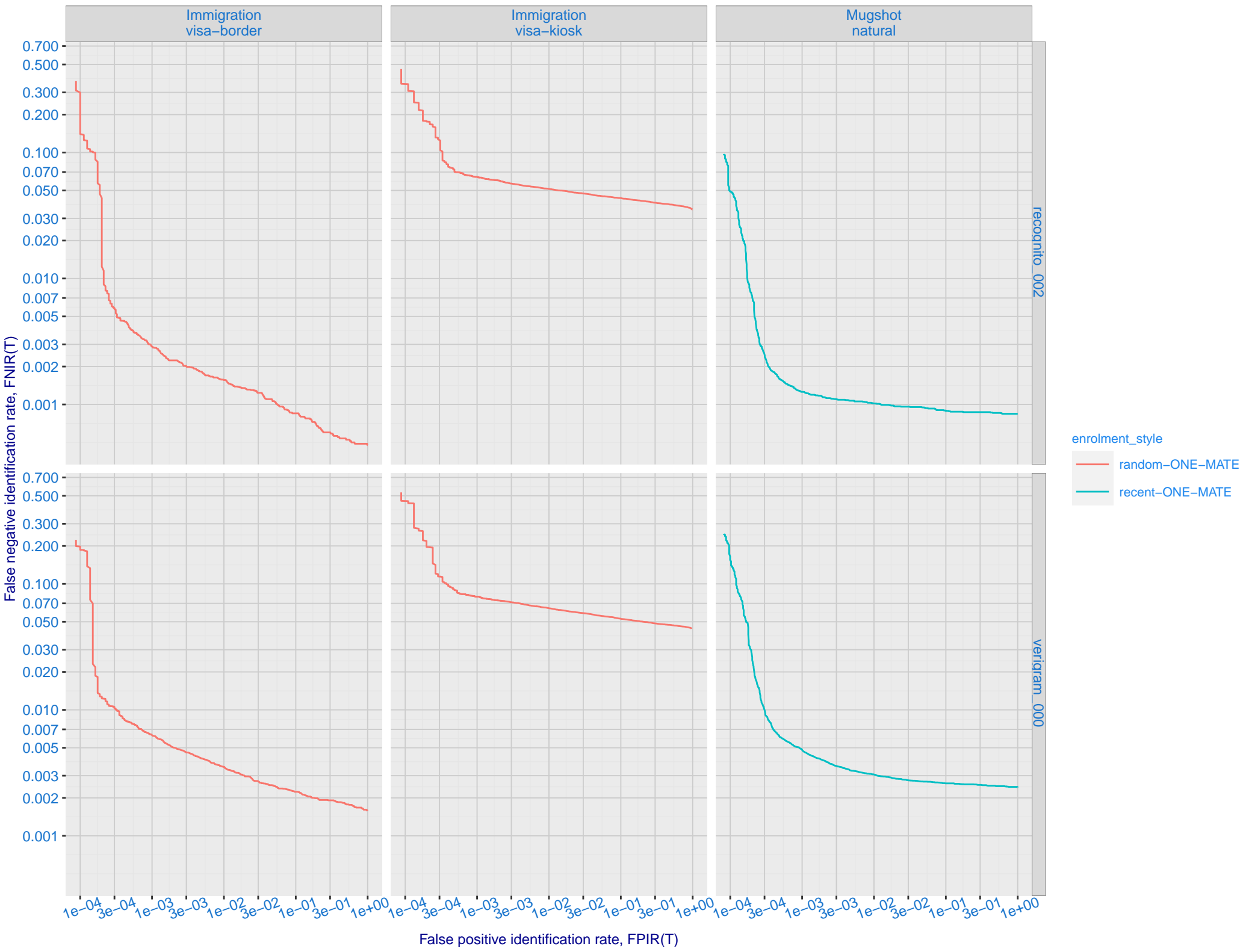
B: Mugshot natural images, identification mode: FNIR(N, L+1, T) vs. most accurate (verigram_000)



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

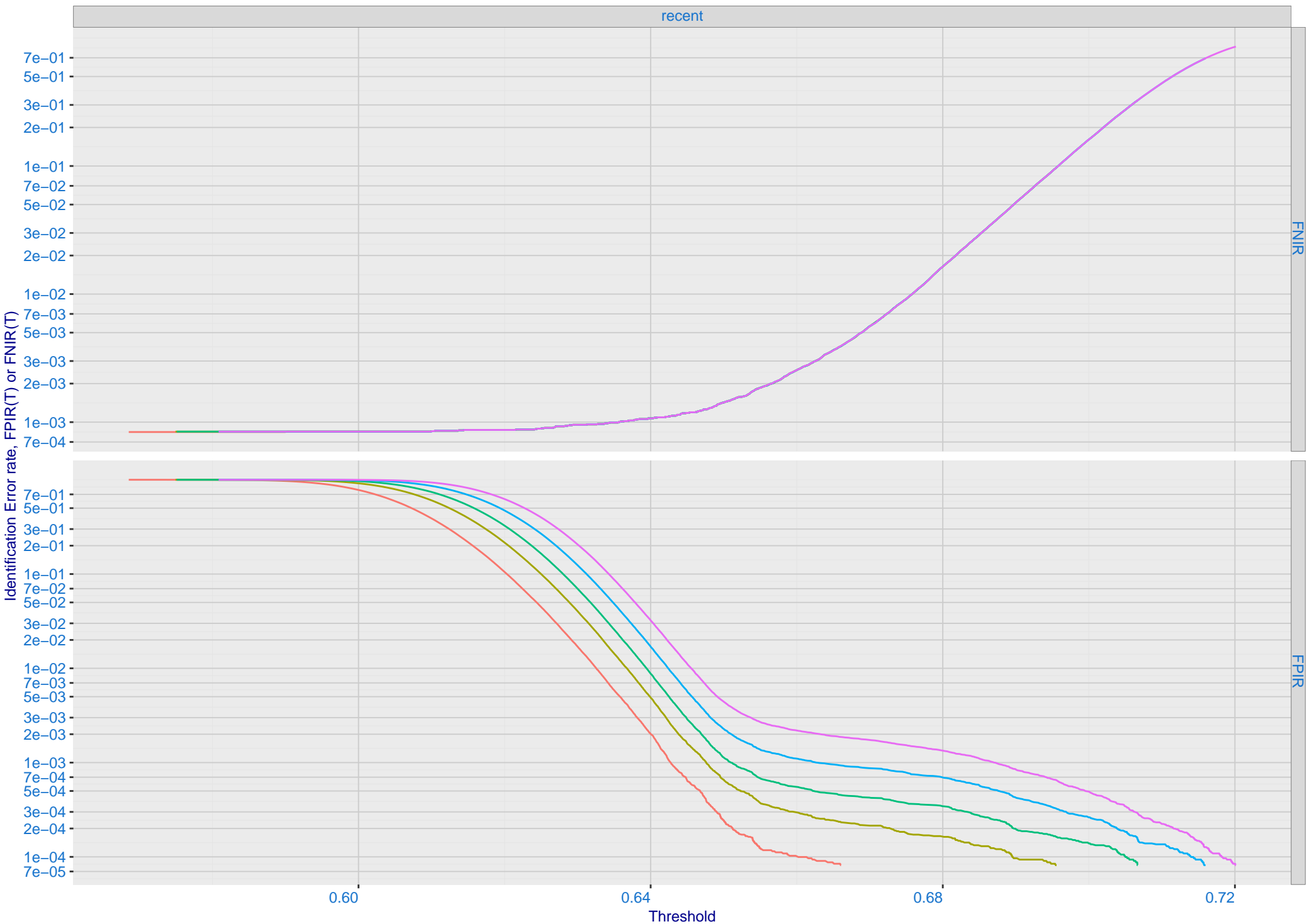


D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals

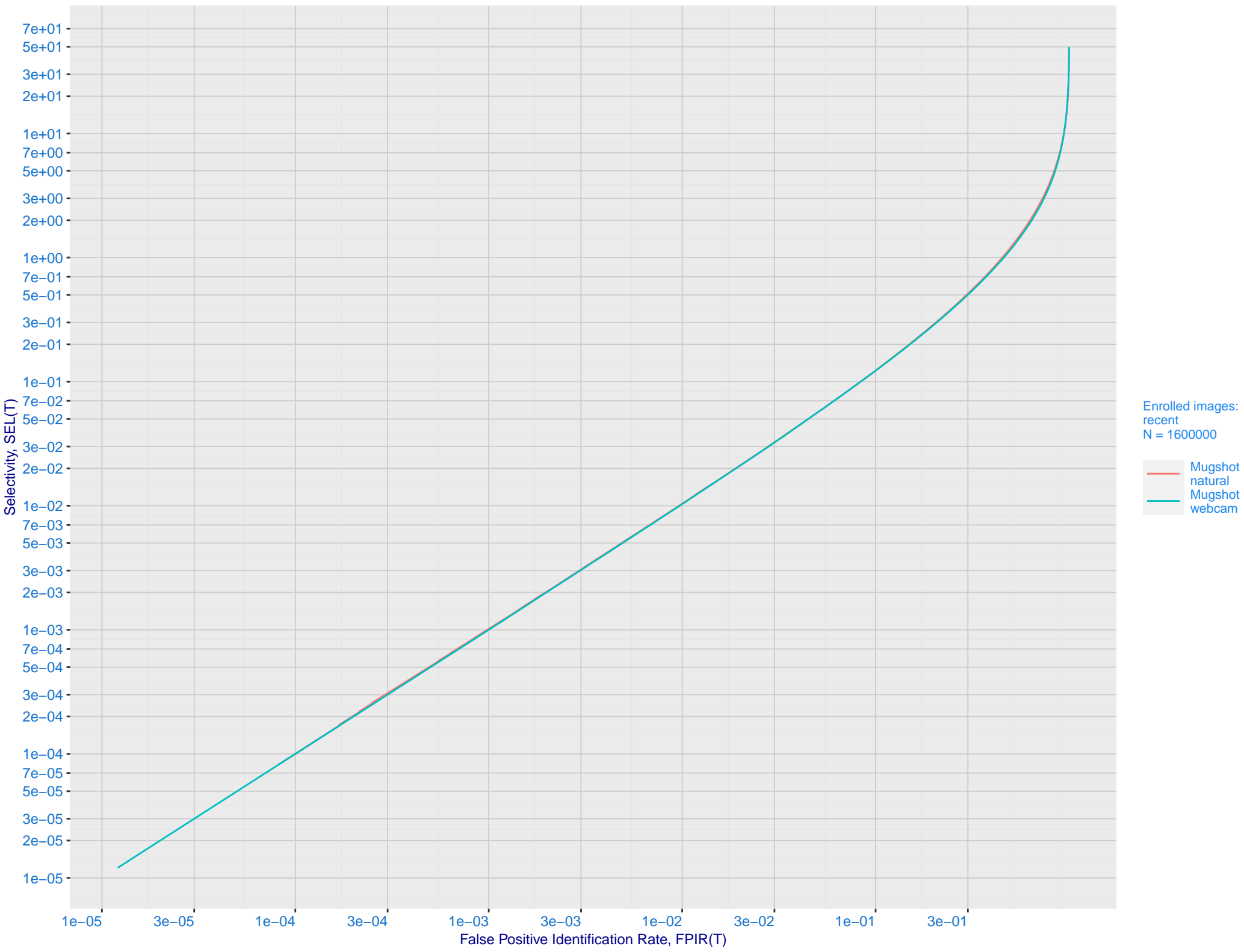


E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images

N 00640000 01600000 03000000 06000000 12000000

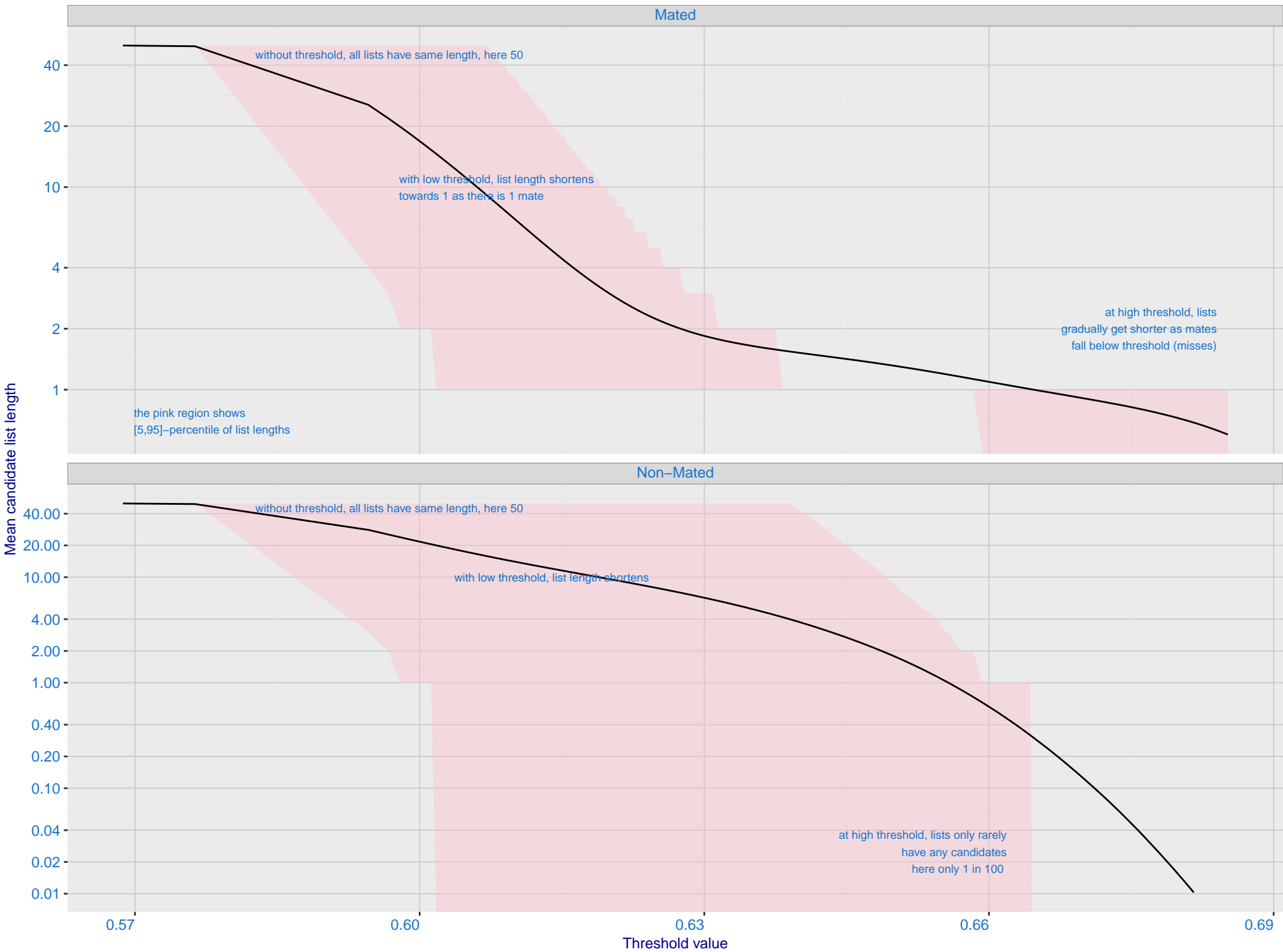


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate



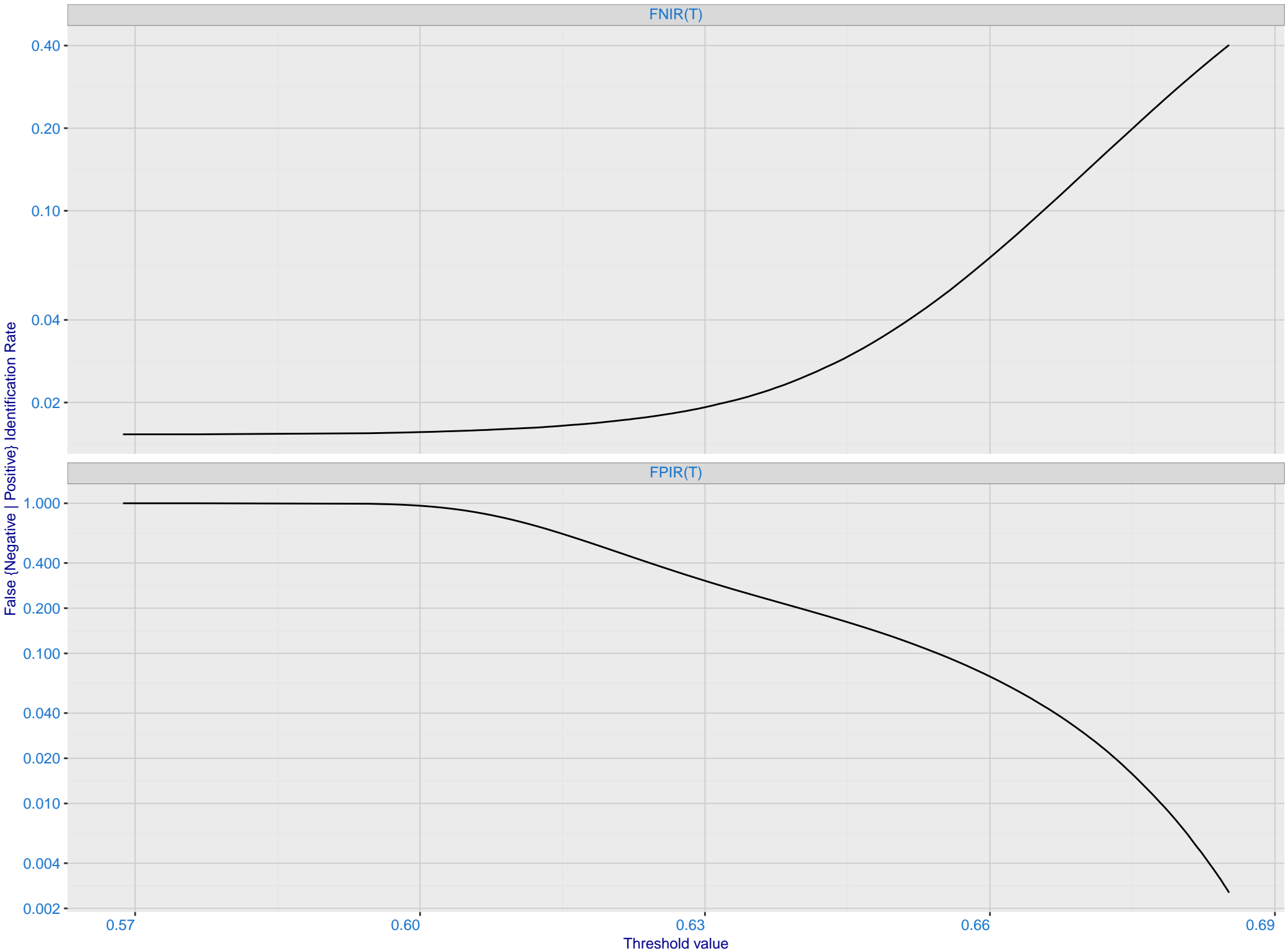
H: Reduced length candidate lists for human review

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

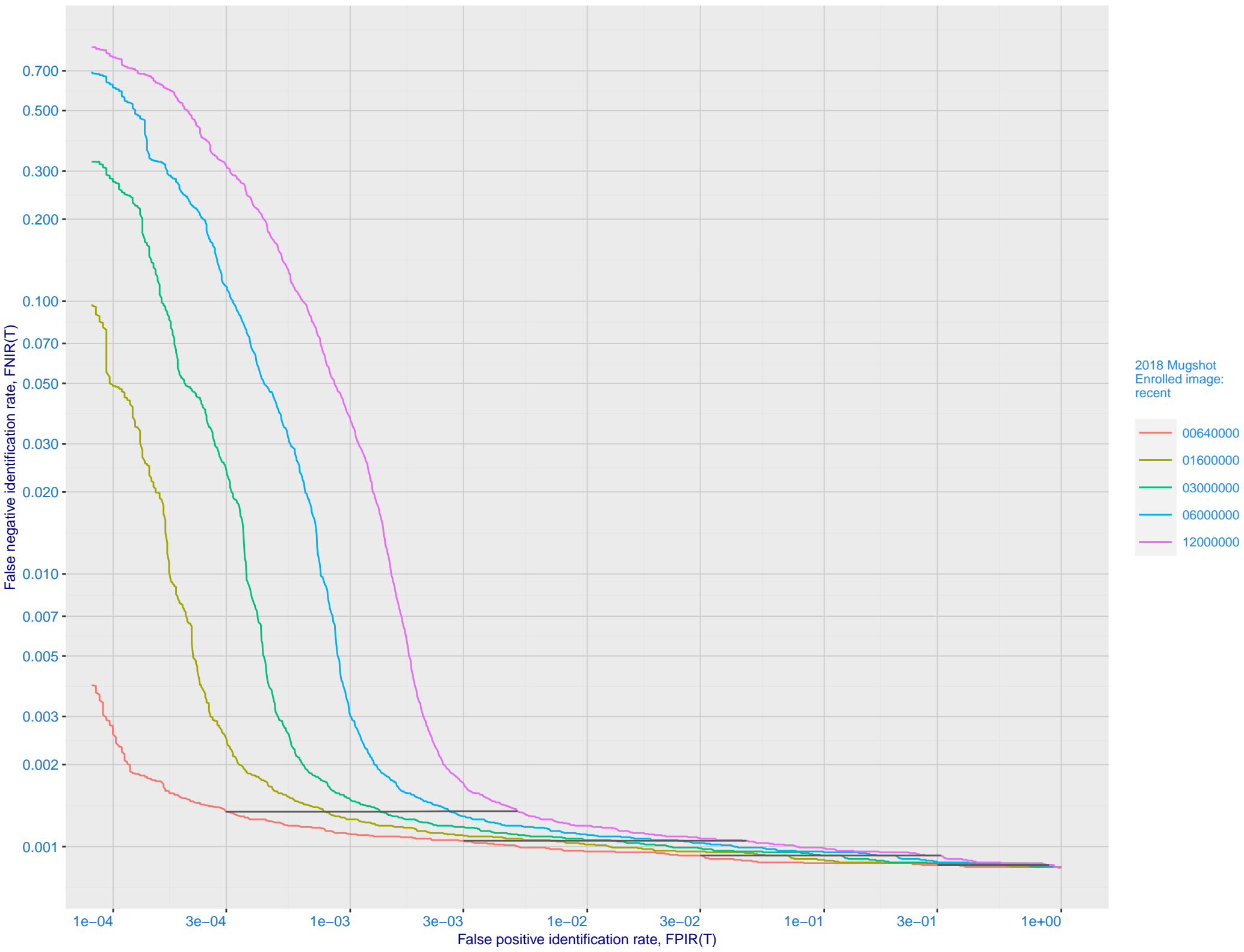


I: FNIR and FPIR dependence on threshold

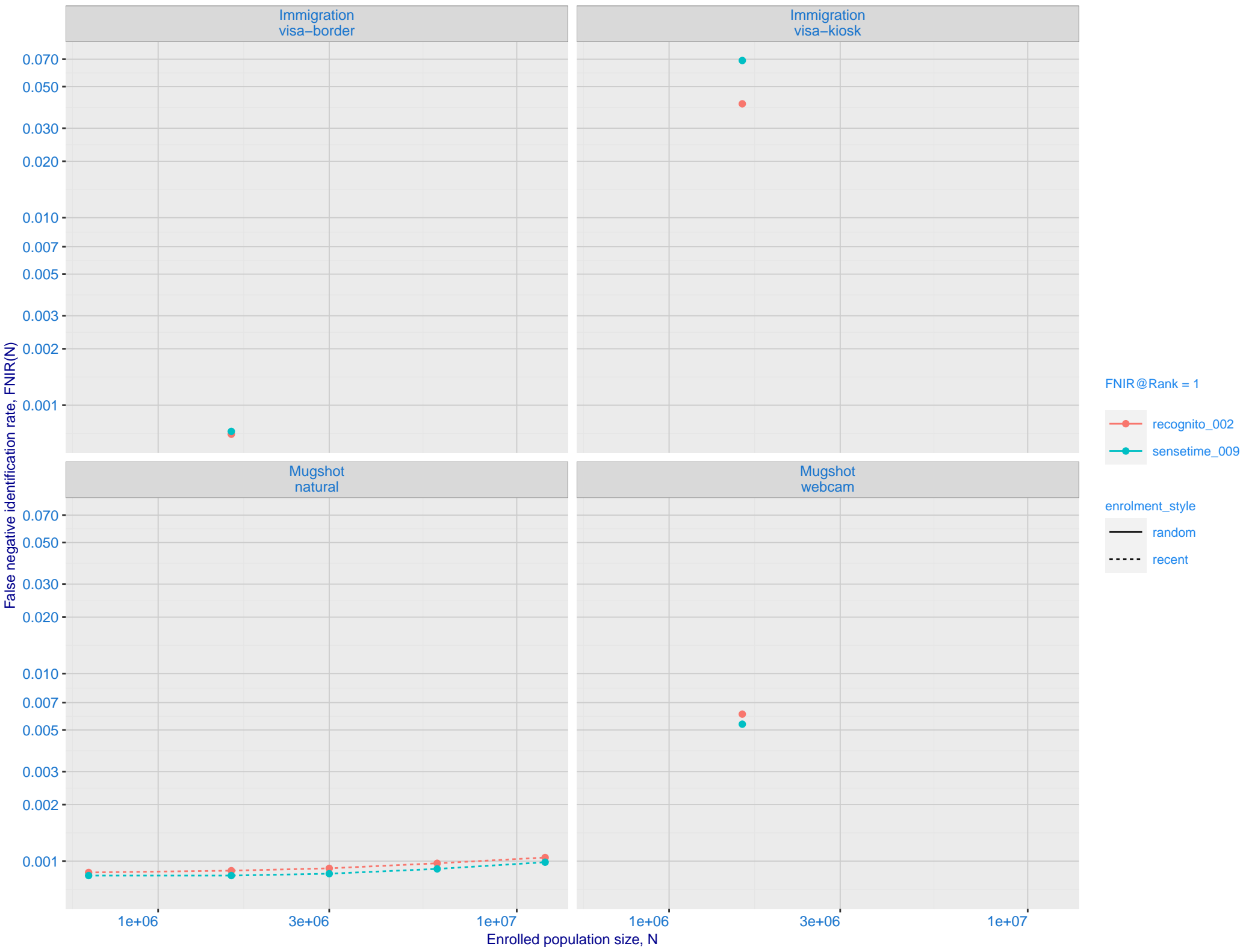
Dataset is border-border with time-lapse [10,15] YRS with N = 1600000. Probes are 10-15 years later than enrollment image



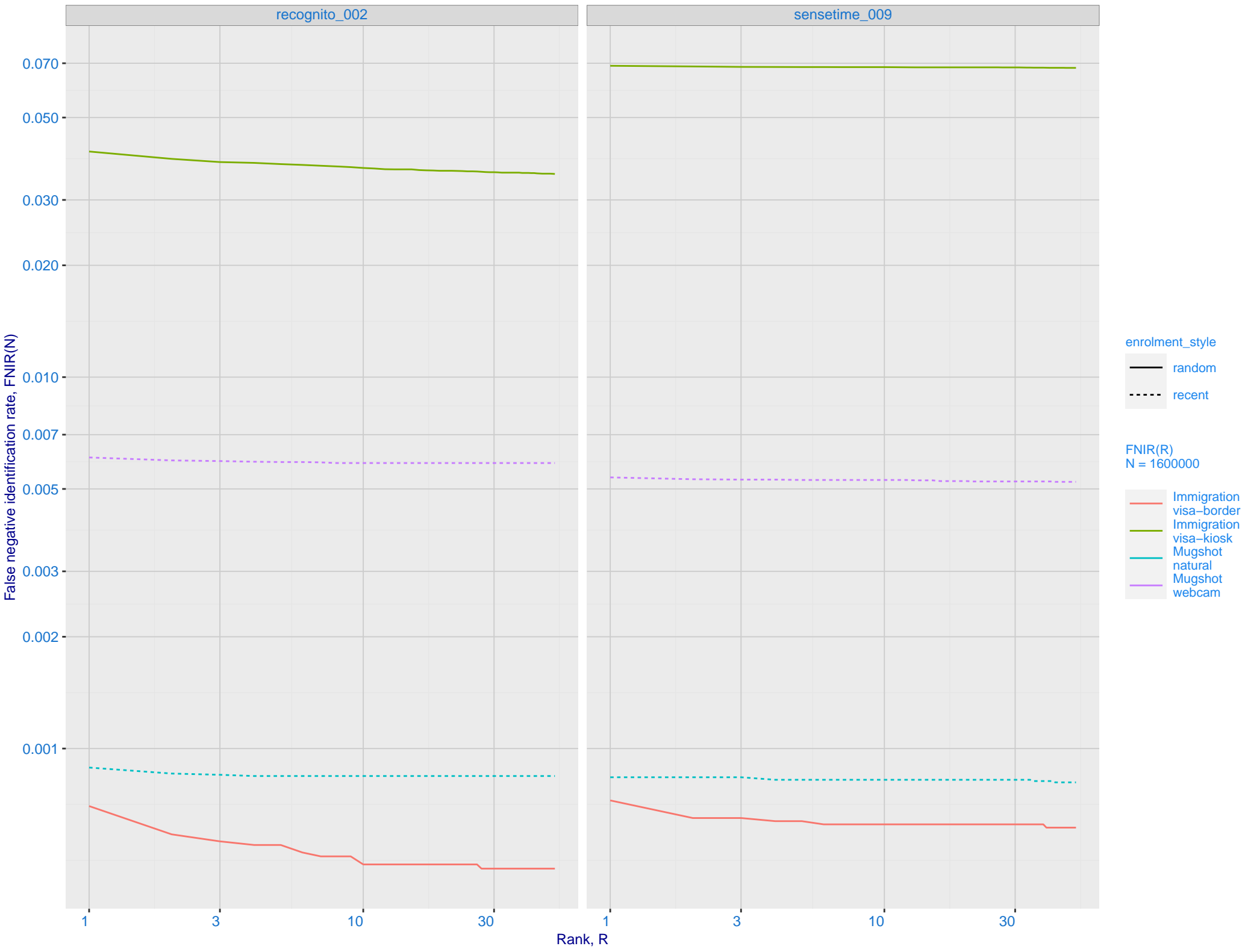
J: DET for Mugshot natural images and various N. Links connect points of equal threshold.



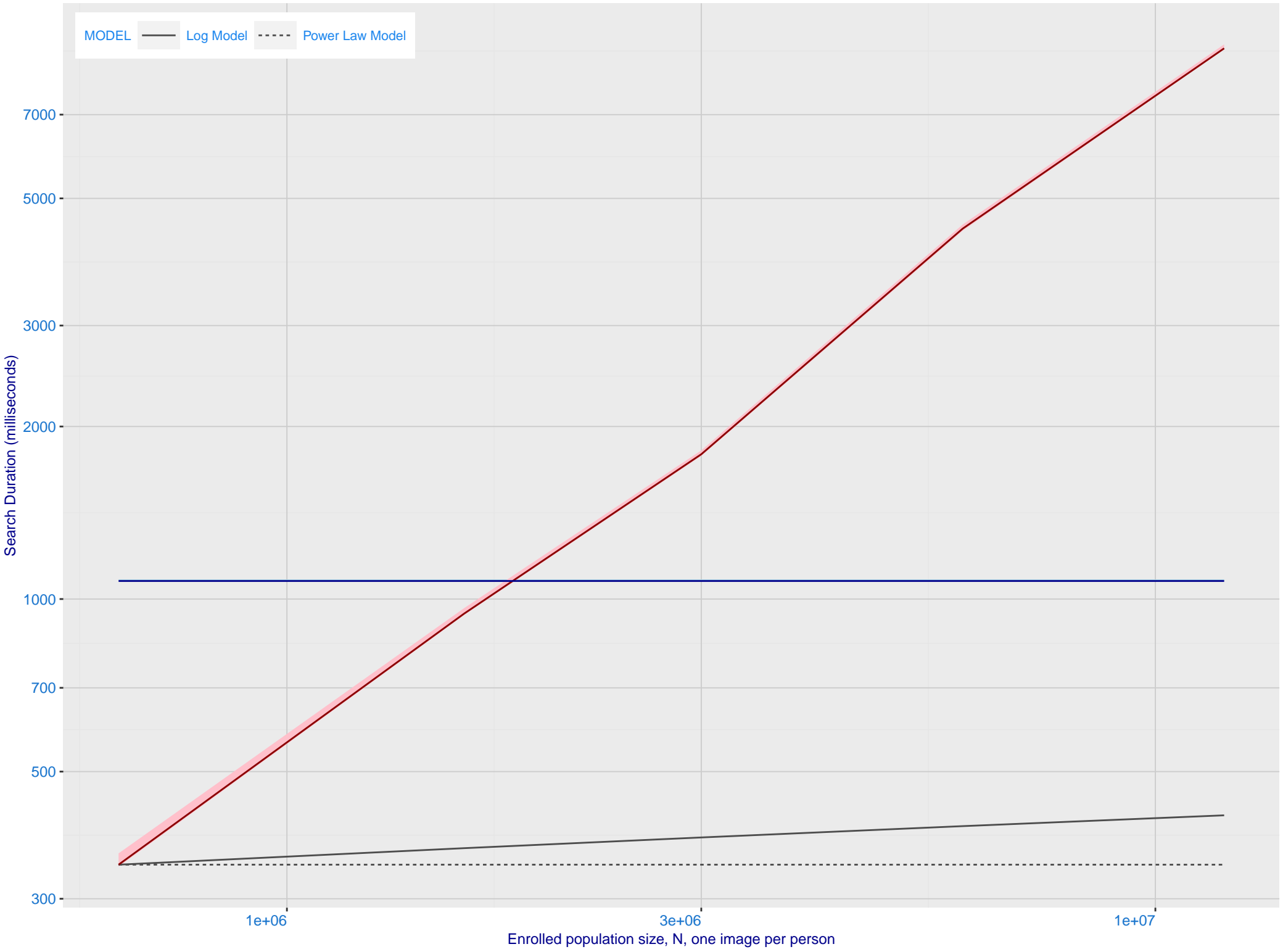
K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_009)



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

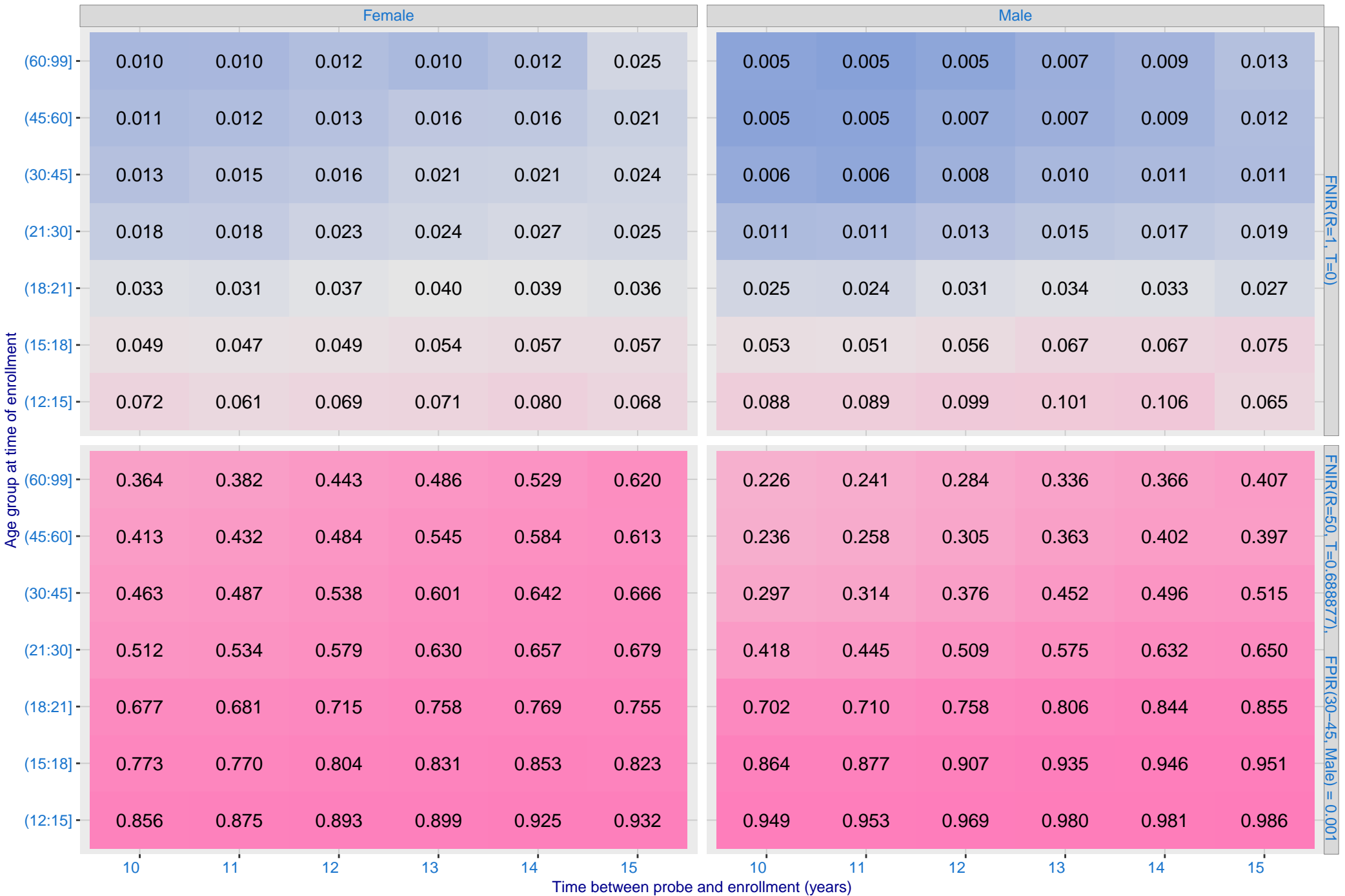


M: Template duration; search duration vs. N. The blue and pink ribbon covers 95 percent of observed measurements. The template generation time is independent of N. The log and power-law models are fit to the first two (N,T) observations



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.

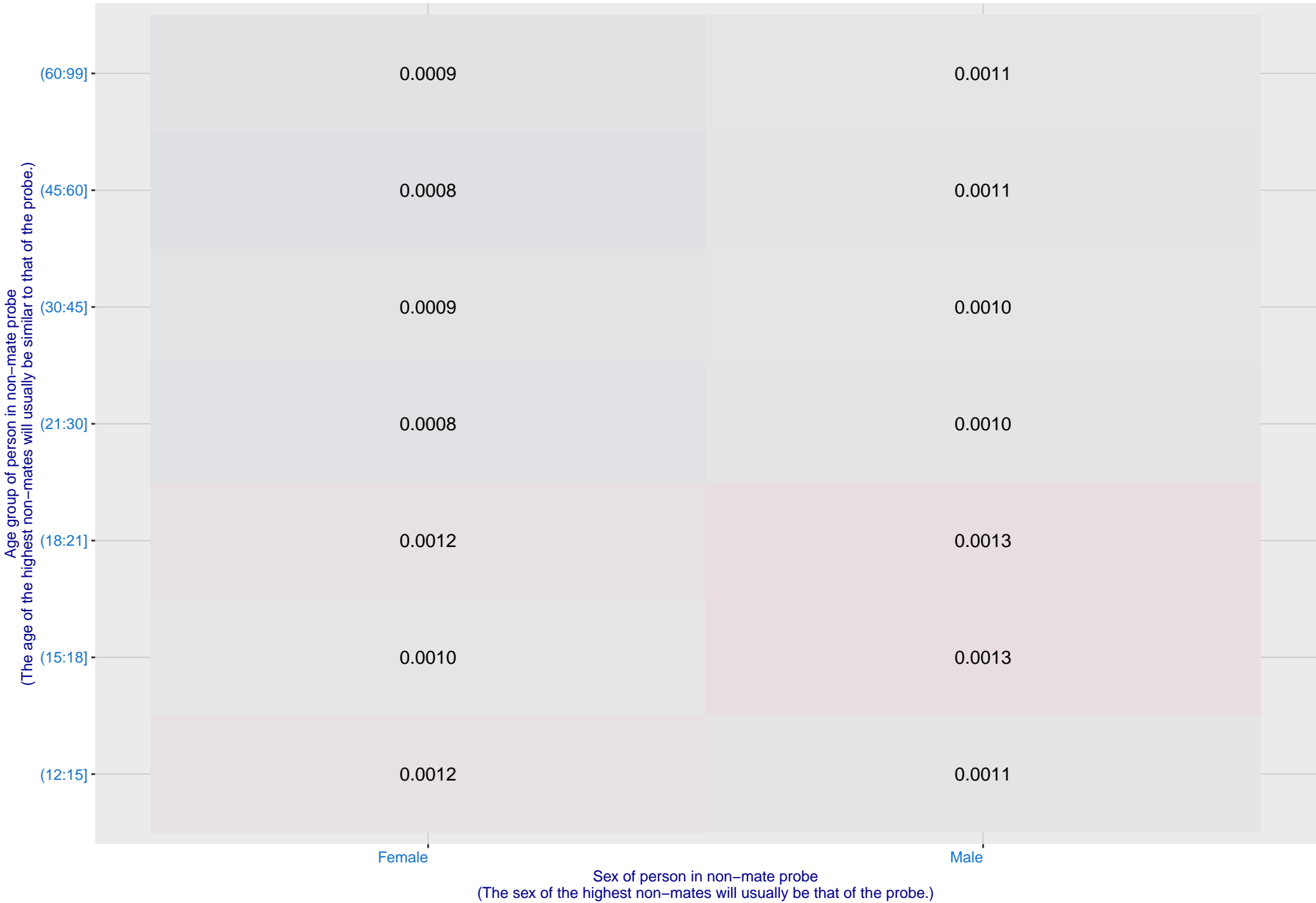
Algorithm: recognito_002, Dataset: Border-Crossing Ageing N = 1600000
Text encodes FNIR, Color encodes log(FNIR)



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.

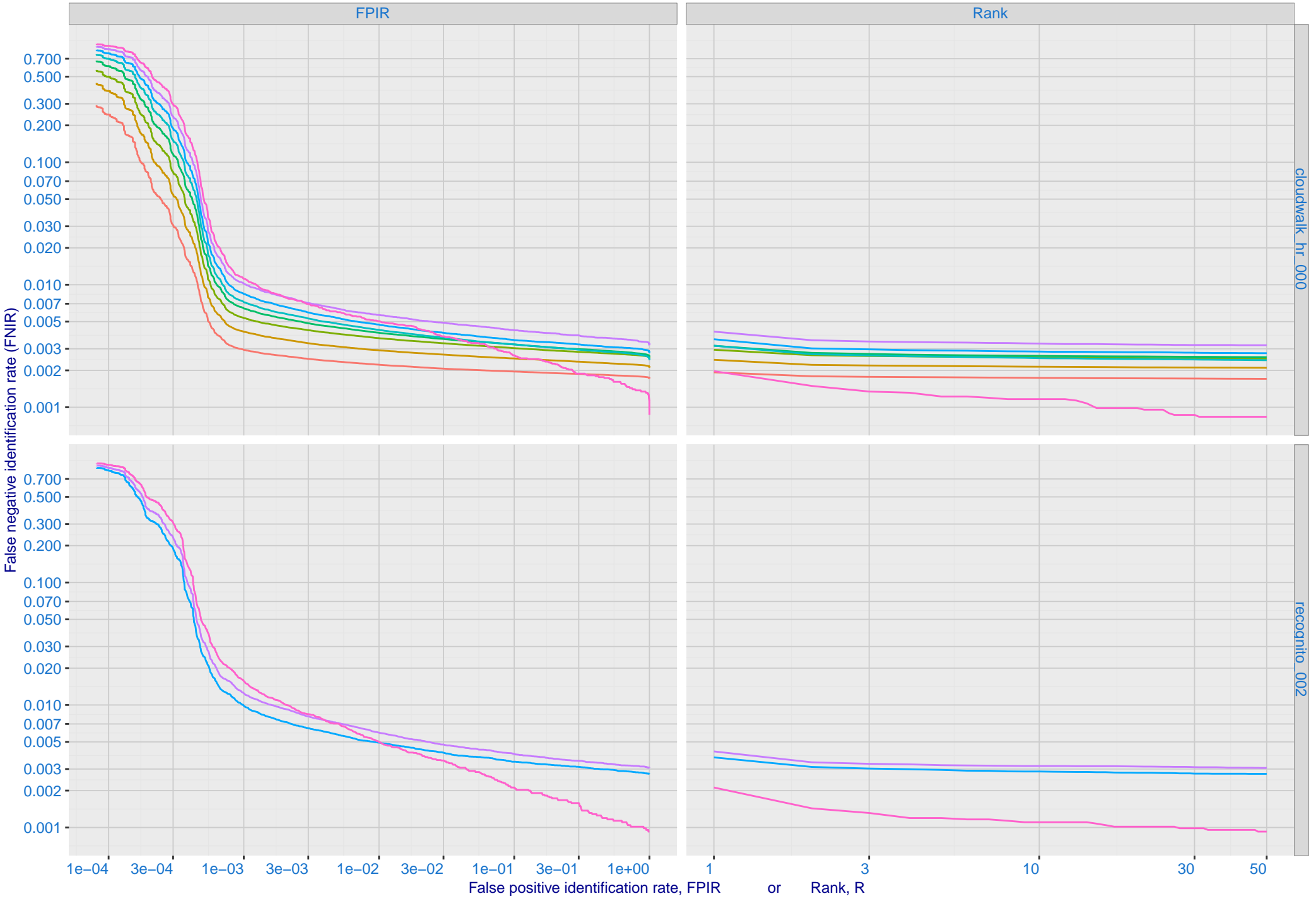
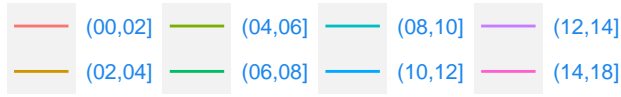
Algorithm: recognito_002, Dataset: Border-Crossing Ageing
Threshold: 0.688877 set to achive FPIR(30-45, Male) = 0.001

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

