

A: Datasheet

Algorithm: realnetworks_008

Developer: Realnetworks Inc

Submission Date: 2022_08_29

Template size: 2056 bytes

Template time (2.5 percentile): 968 msec

Template time (median): 969 msec

Template time (97.5 percentile): 998 msec

Investigation:

Mugshot webcam ranking 24 (out of 331) -- FNIR(1600000, 0, 1) = 0.0077 vs. lowest 0.0055 from sensetime_008

Mugshot profile ranking 39 (out of 300) -- FNIR(1600000, 0, 1) = 0.0888 vs. lowest 0.0521 from sensetime_007

Immigration visa-border ranking 32 (out of 258) -- FNIR(1600000, 0, 1) = 0.0017 vs. lowest 0.0006 from cloudwalk_mt_001

Immigration visa-kiosk ranking 66 (out of 203) -- FNIR(1600000, 0, 1) = 0.0815 vs. lowest 0.0395 from cloudwalk_mt_001

Identification:

Frontal mugshot ranking 44 (out of 369) -- FNIR(1600000, T, L+1) = 0.0062, FPIR=0.001000 vs. lowest 0.0013 from sensetime_008

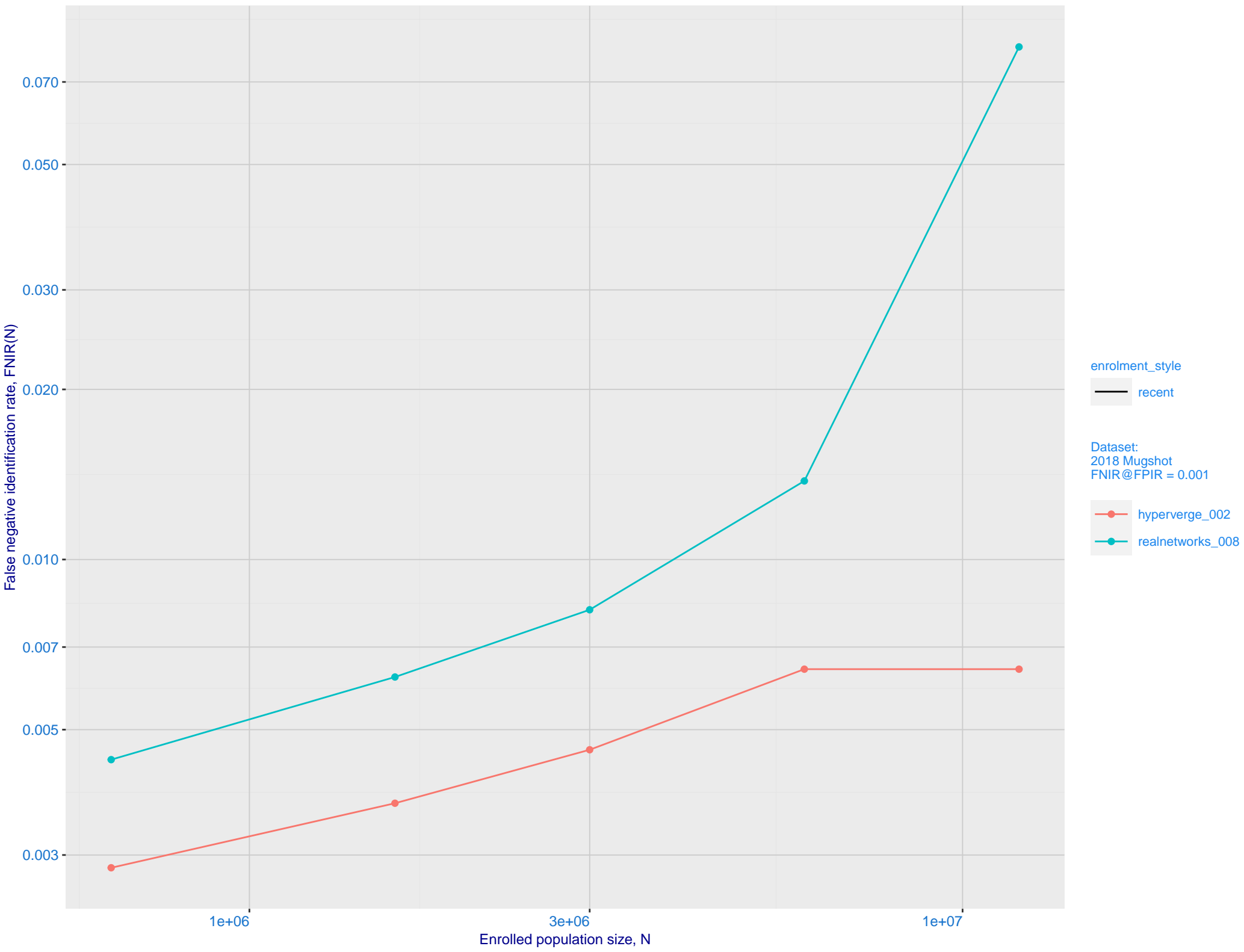
Mugshot webcam ranking 43 (out of 329) -- FNIR(1600000, T, L+1) = 0.0292, FPIR=0.001000 vs. lowest 0.0090 from sensetime_008

Mugshot profile ranking 91 (out of 299) -- FNIR(1600000, T, L+1) = 0.9676, FPIR=0.001000 vs. lowest 0.0698 from cloudwalk_mt_001

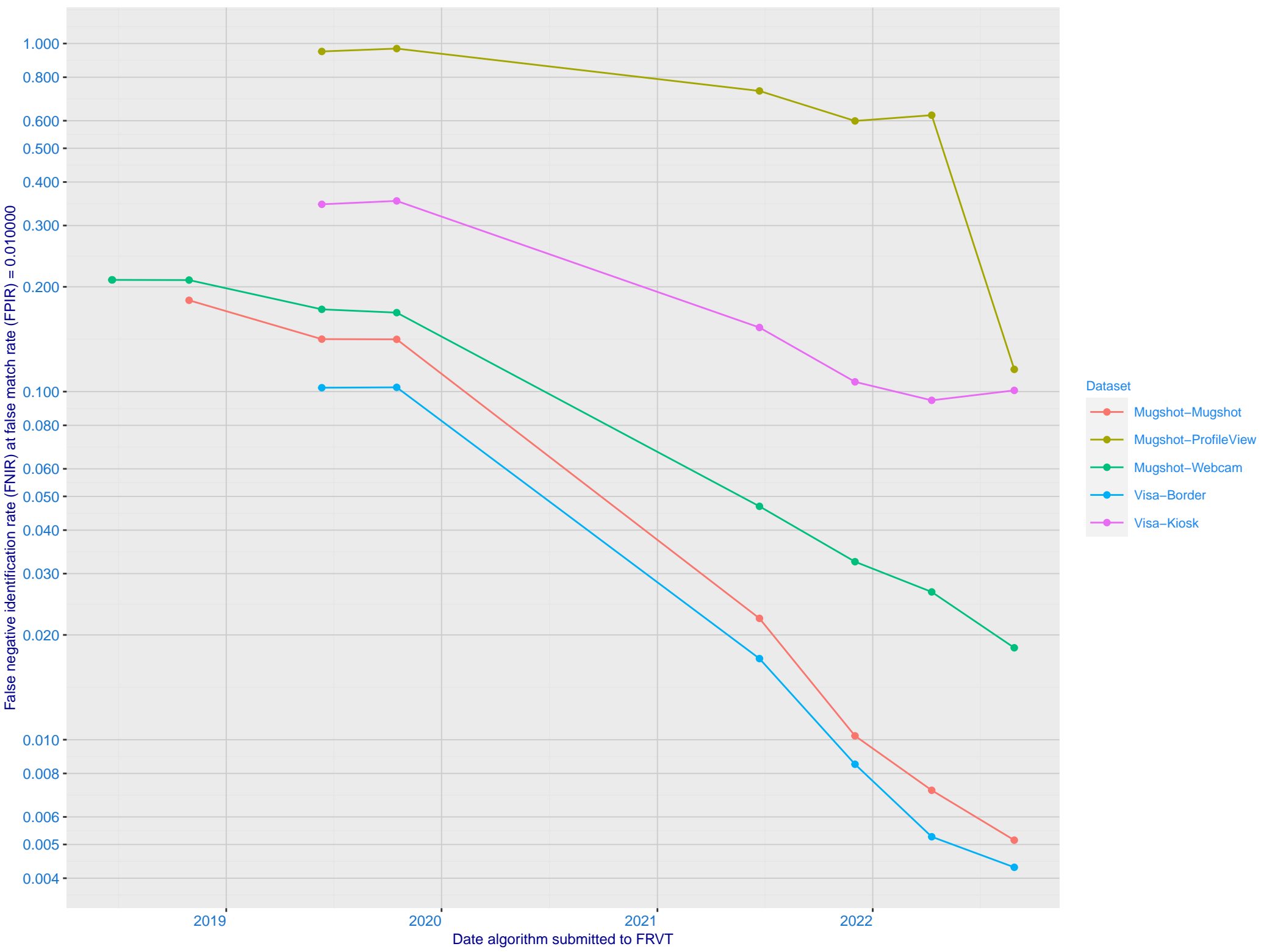
Immigration visa-border ranking 36 (out of 257) -- FNIR(1600000, T, L+1) = 0.0084, FPIR=0.001000 vs. lowest 0.0013 from cloudwalk_mt_001

Immigration visa-kiosk ranking 34 (out of 203) -- FNIR(1600000, T, L+1) = 0.1195, FPIR=0.001000 vs. lowest 0.0532 from cloudwalk_mt_001

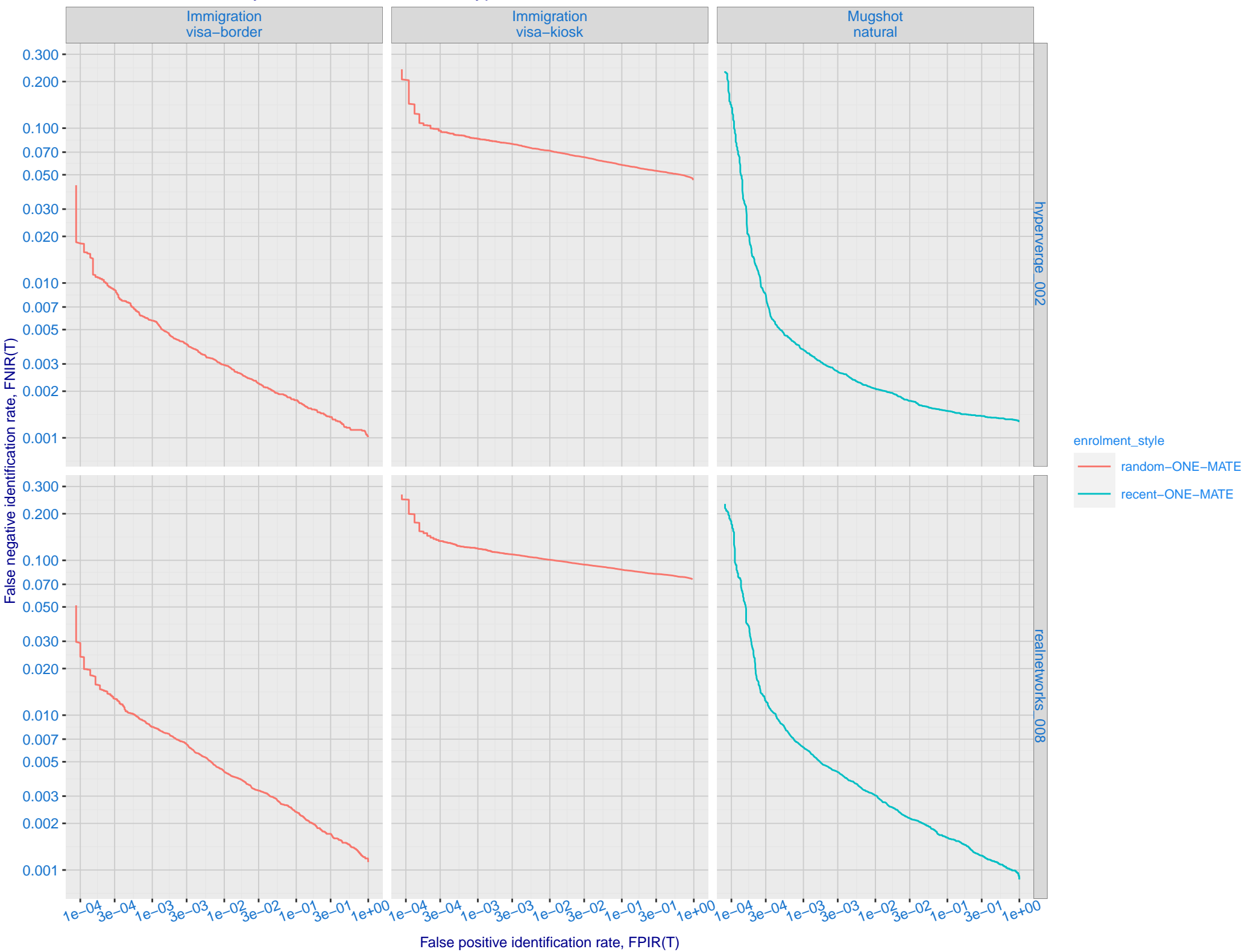
B: Mugshot natural images, identification mode: FNIR(N, L+1, T) vs. most accurate (hyperverge_002)



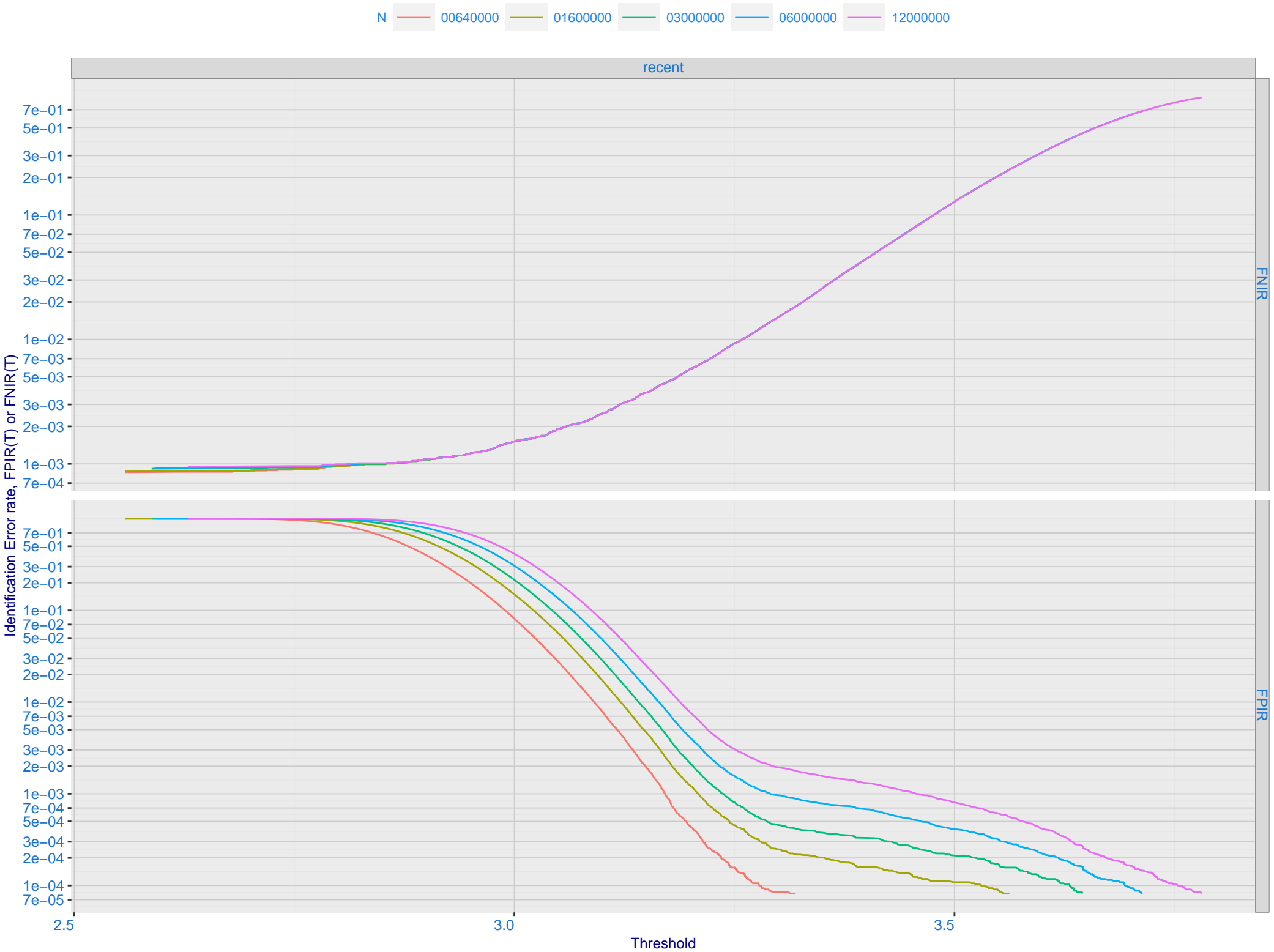
C: Evolution of accuracy for REALNETWORKS algorithms on three datasets 2018 – present



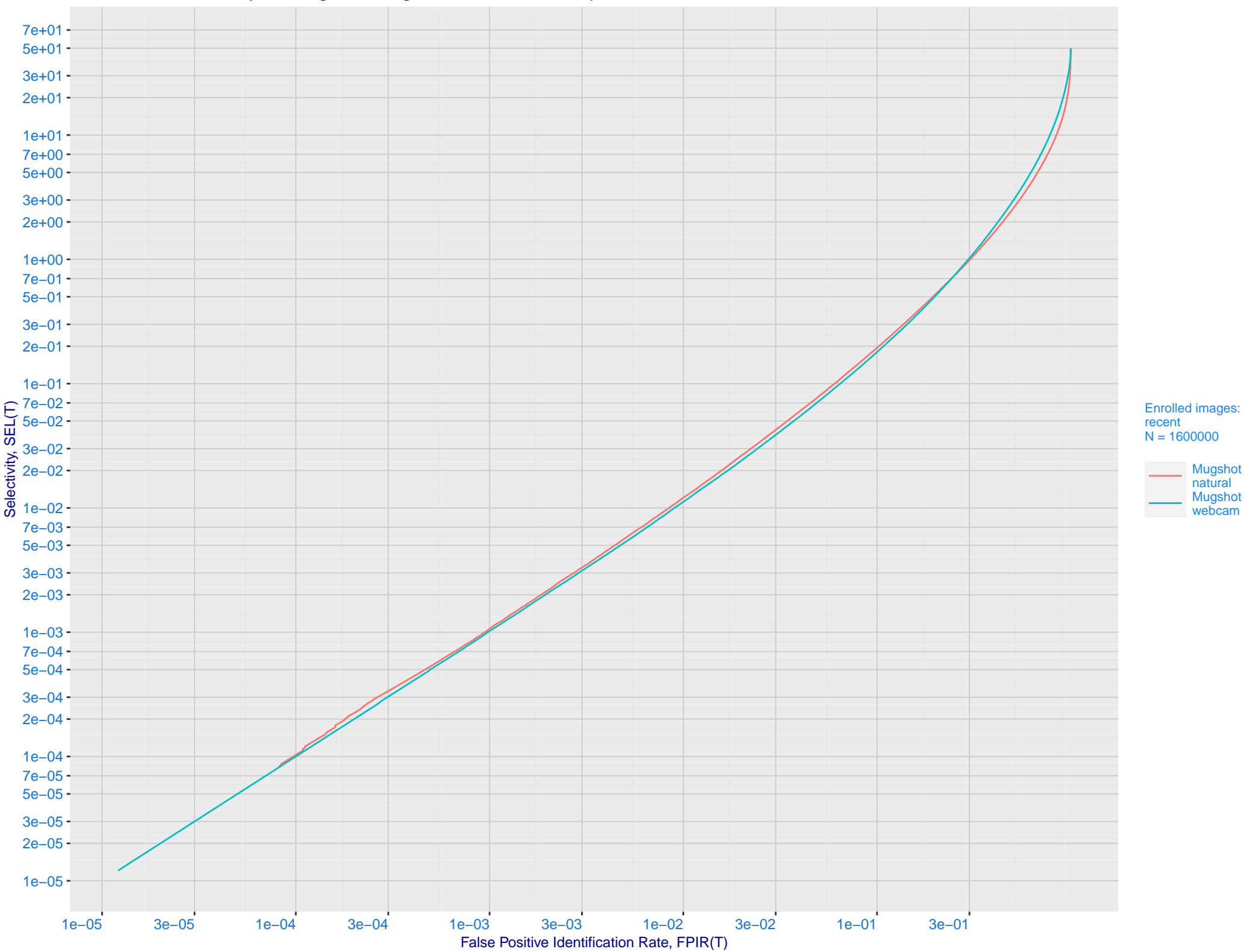
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals



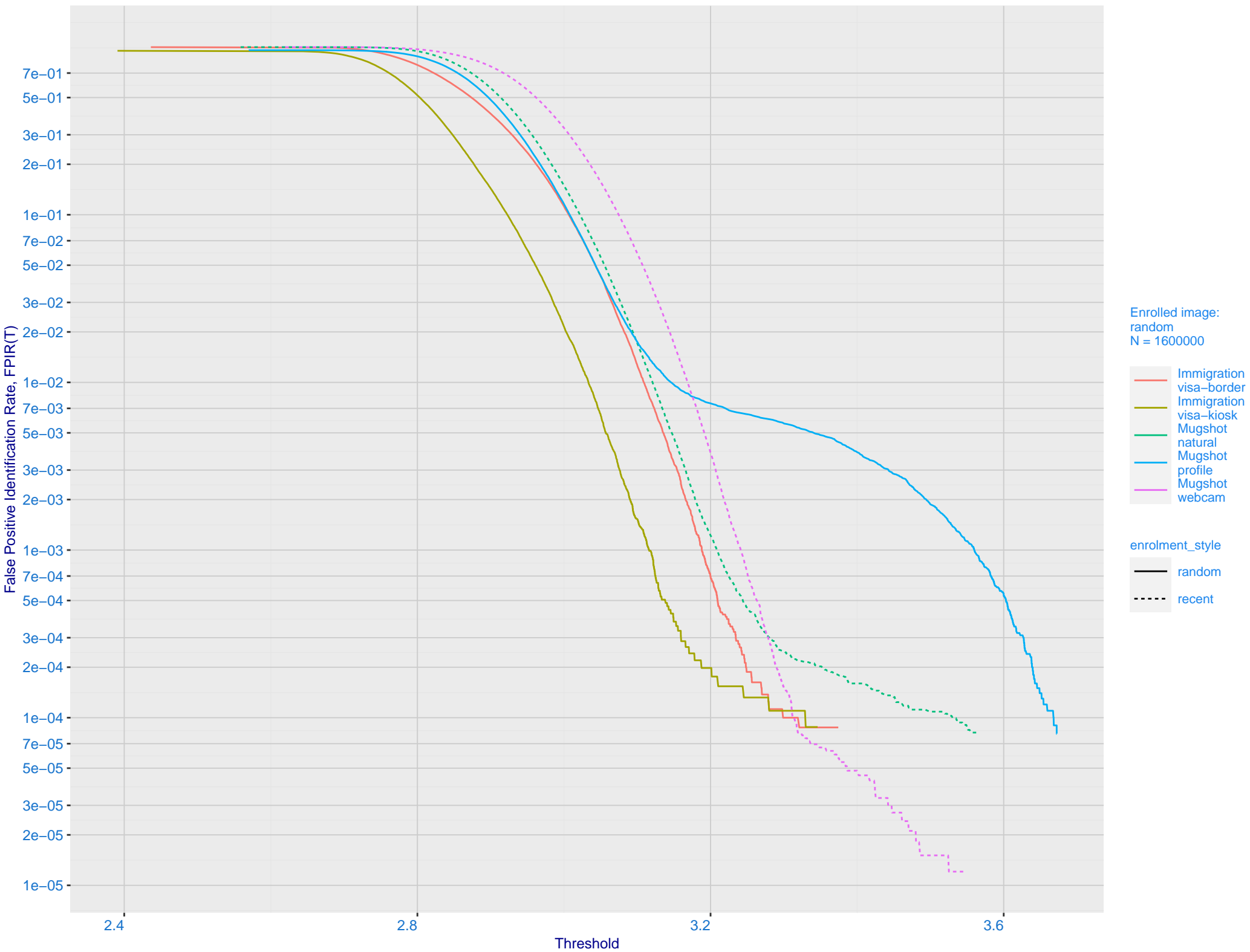
E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



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

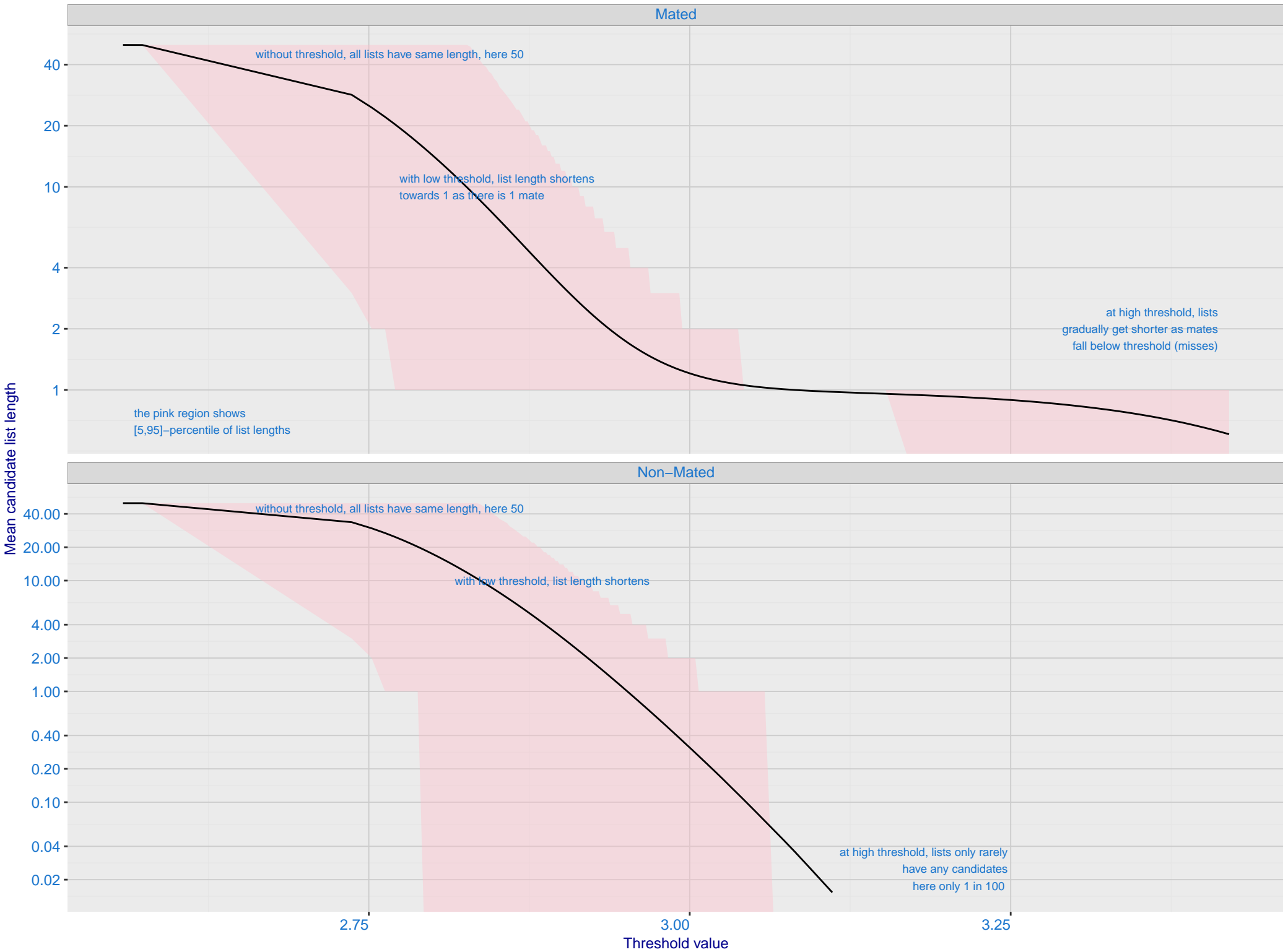


G: FPIR dependence on T by probe type for N = 1600000 subjects



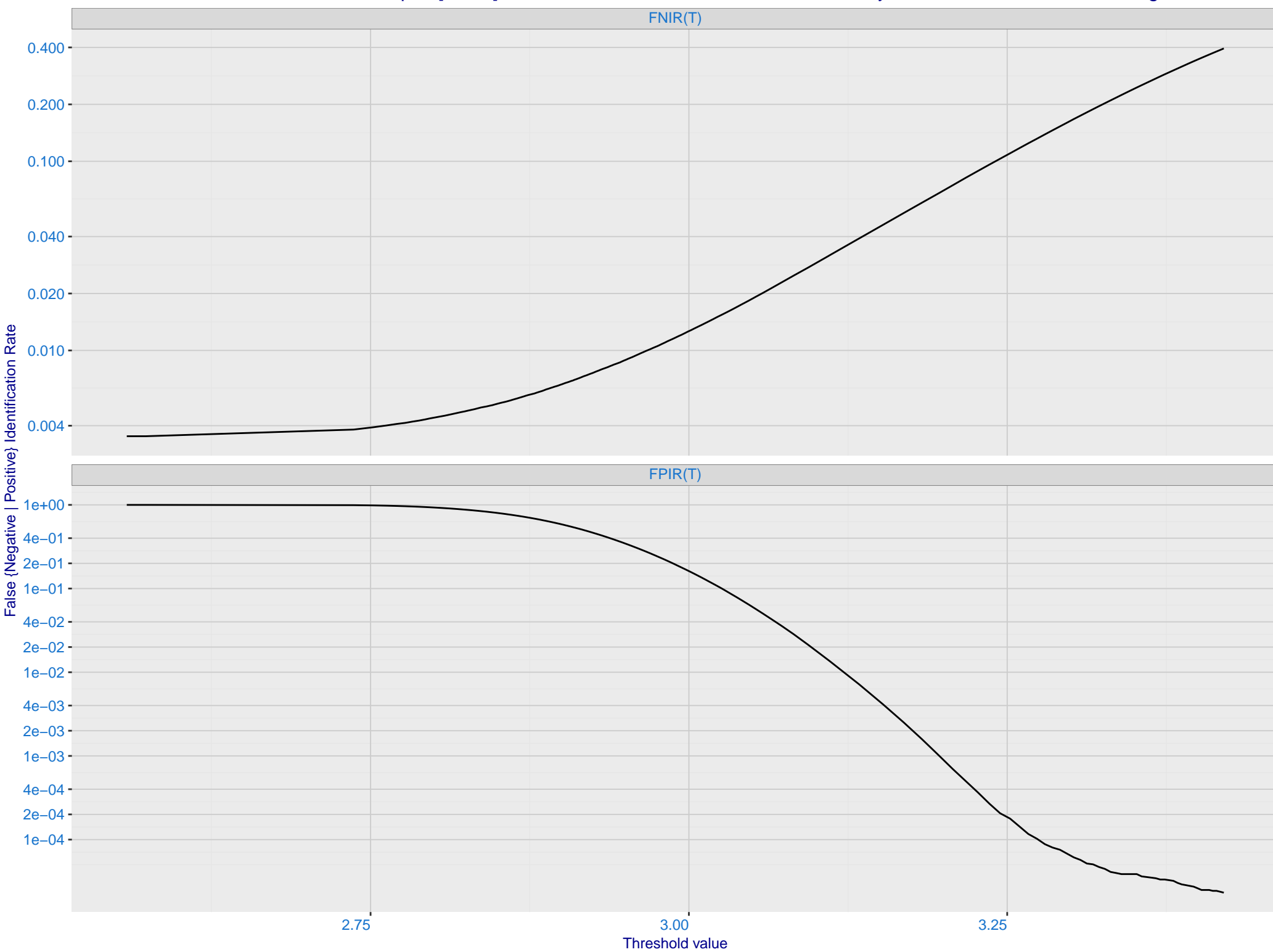
H: Reduced length candidate lists for human review

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

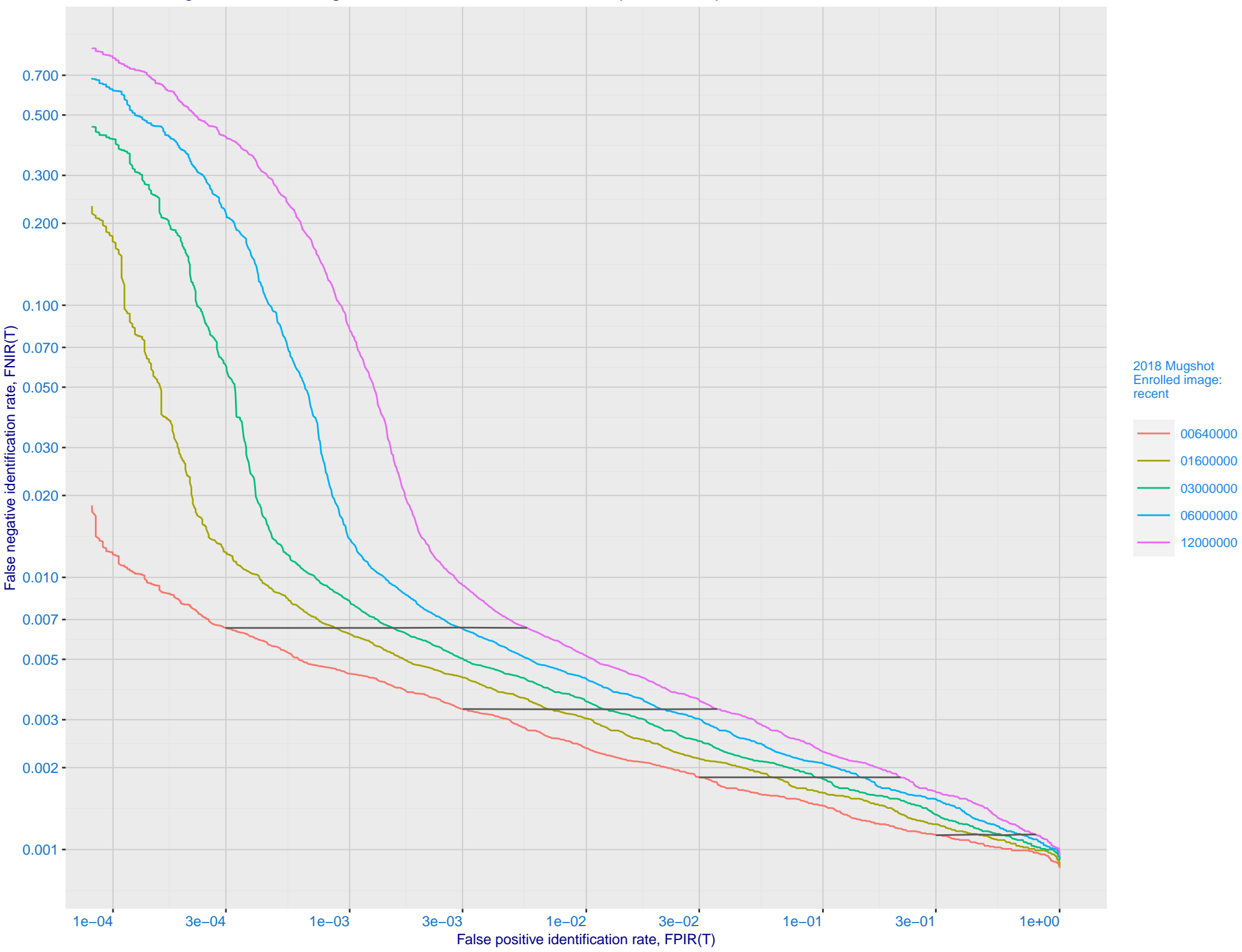


I: FNIR and FPIR dependence on threshold

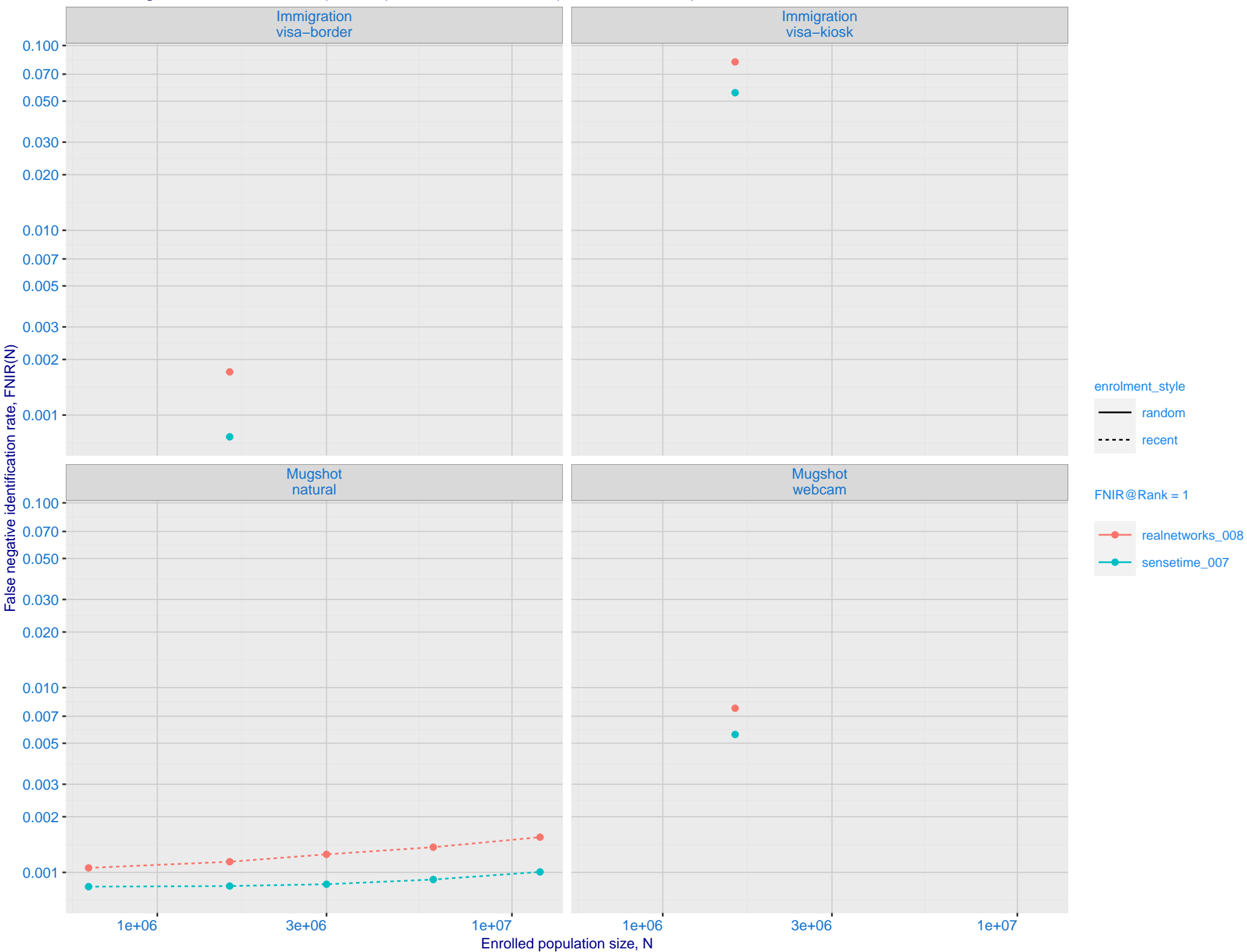
Dataset is border-border with time-lapse [10,15] YRS with N = 1600000. Probes are 10-15 years later than enrollment image



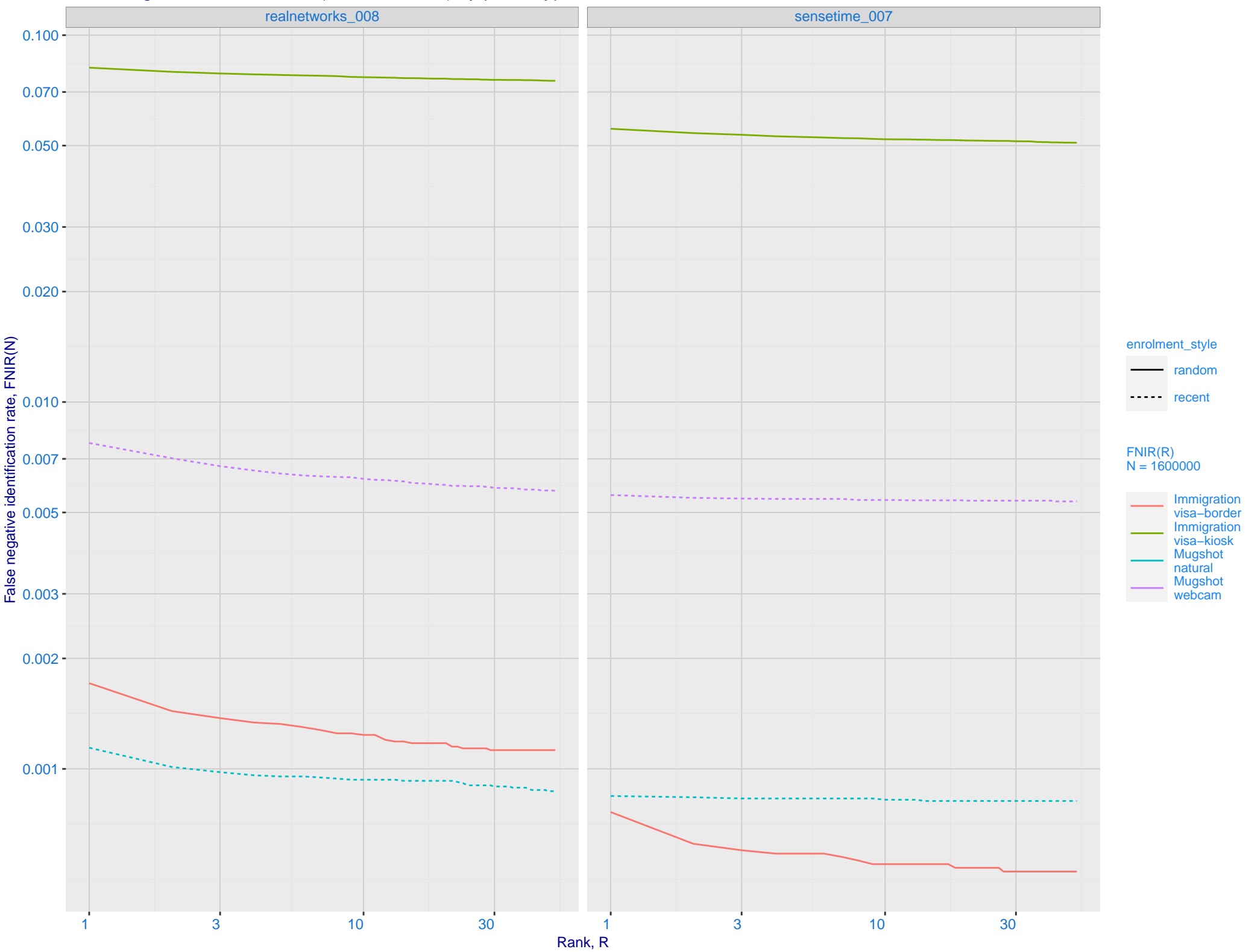
J: DET for Mugshot natural images and various N. Links connect points of equal threshold.



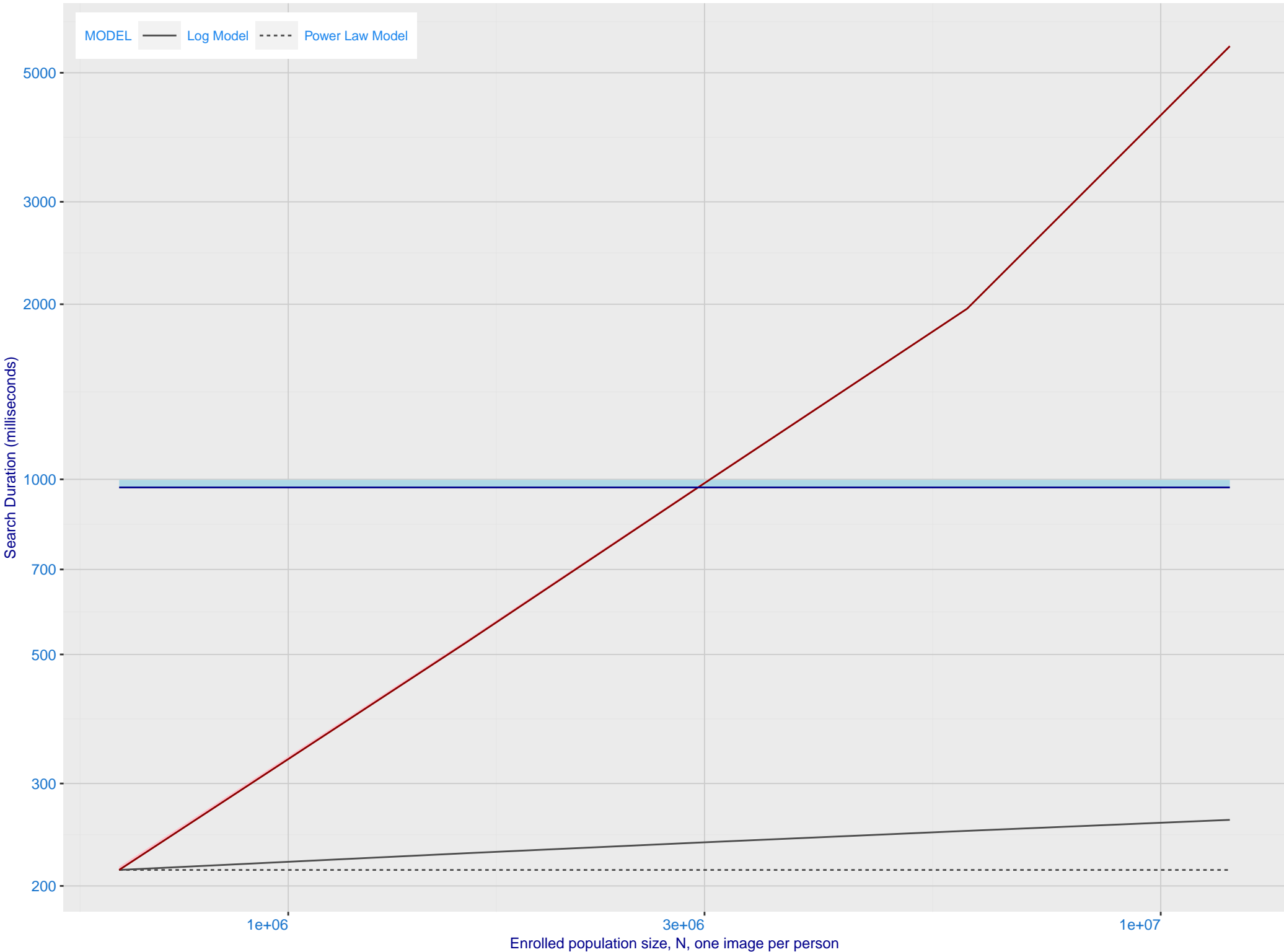
K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_007)



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

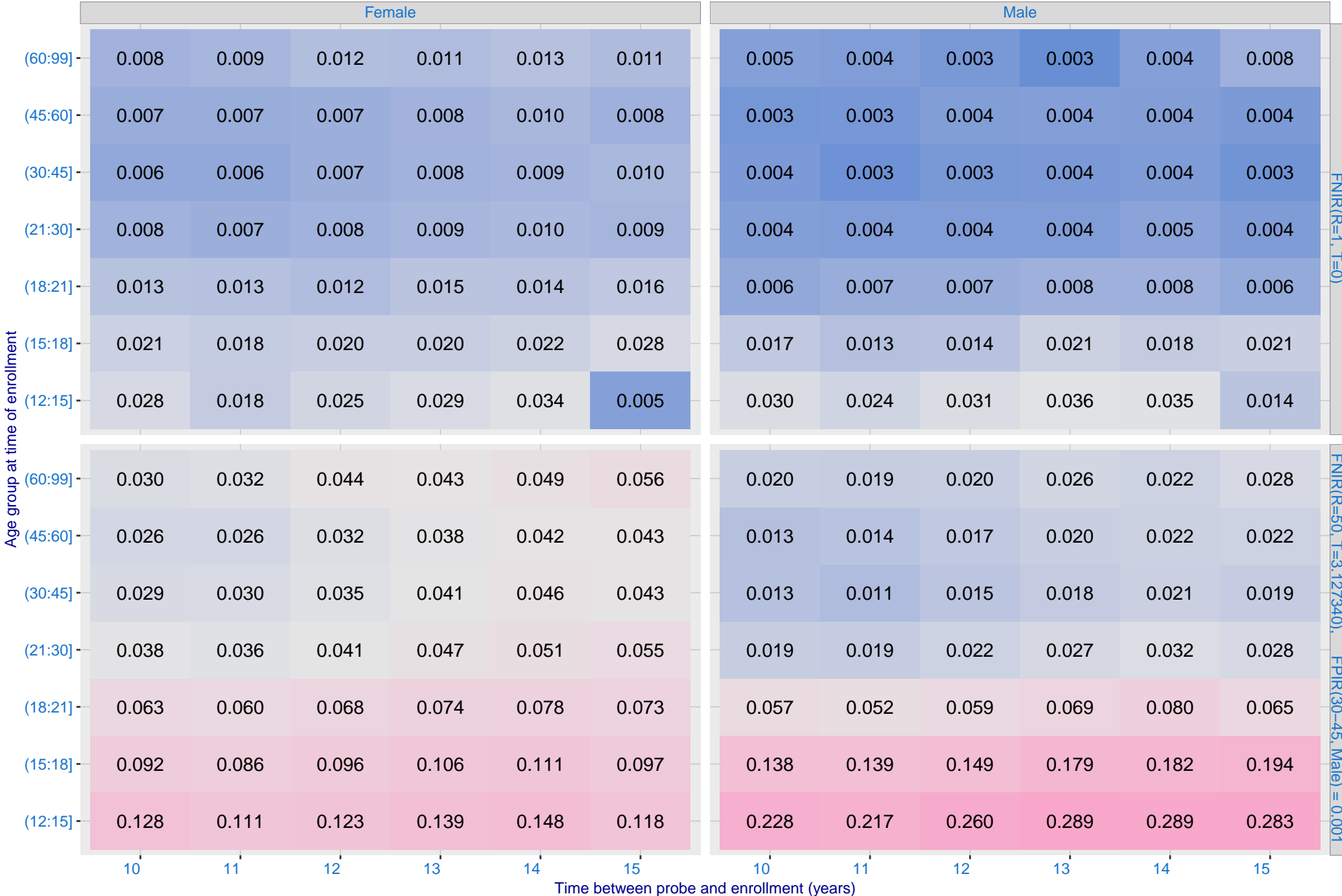


M: Template duration; search duration vs. N. The blue and pink ribbon covers 95 percent of observed measurements. The template generation time is independent of N. The log and power-law models are fit to the first two (N,T) observations



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.

Algorithm: realnetworks_008, 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.

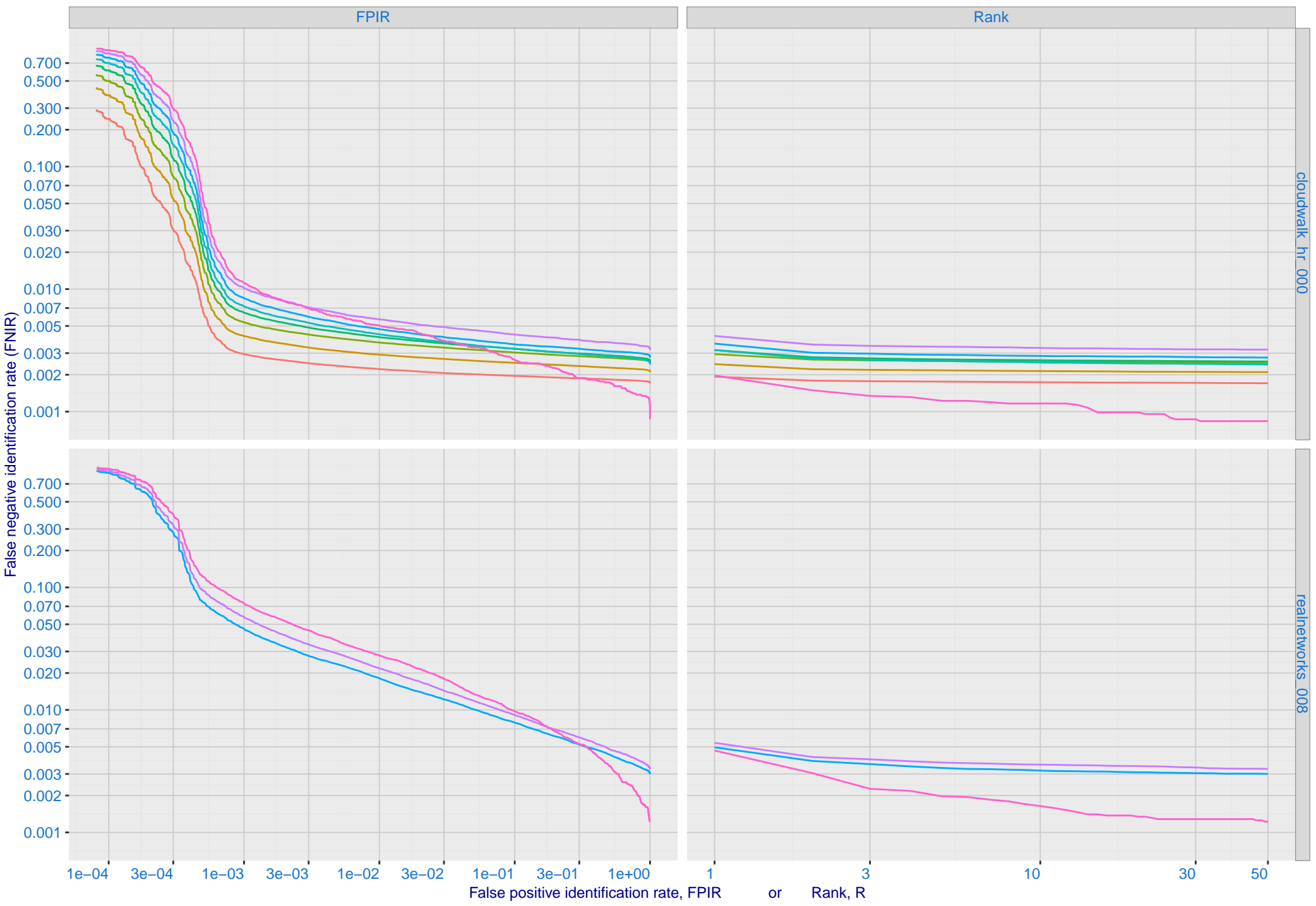
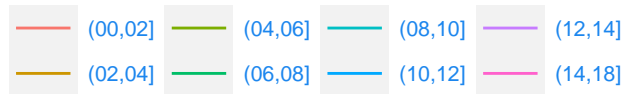
Algorithm: realnetworks_008, Dataset: Border-Crossing Ageing
Threshold: 3.127340 set to achive FPIR(30-45, Male) = 0.001

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

