A: Datasheet

Algorithm: dilusense_000

Developer: DiluSense Technology

Submission Date: 2022_05_26

Template size: 2048 bytes

Template time (2.5 percentile): 246 msec

Template time (median): 247 msec

Template time (97.5 percentile): 291 msec

Investigation:

Frontal mugshot ranking 91 (out of 353) –– FNIR(1600000, 0, 1) = 0.0022 vs. lowest 0.0008 from sensetime_007

Mugshot webcam ranking 76 (out of 315) –– FNIR(1600000, 0, 1) = 0.0120 vs. lowest 0.0056 from sensetime_007

Mugshot profile ranking 79 (out of 284) –– FNIR(1600000, 0, 1) = 0.2970 vs. lowest 0.0521 from sensetime_007

Immigration visa–border ranking 121 (out of 242) –– FNIR(1600000, 0, 1) = 0.0078 vs. lowest 0.0008 from sensetime_007

Immigration visa–kiosk ranking 73 (out of 239) –– FNIR(1600000, 0, 1) = 0.0991 vs. lowest 0.0487 from cubox_000

Identification:

Frontal mugshot ranking 120 (out of 353) –– FNIR(1600000, T, L+1) = 0.0303, FPIR=0.001000 vs. lowest 0.0014 from sensetime_007
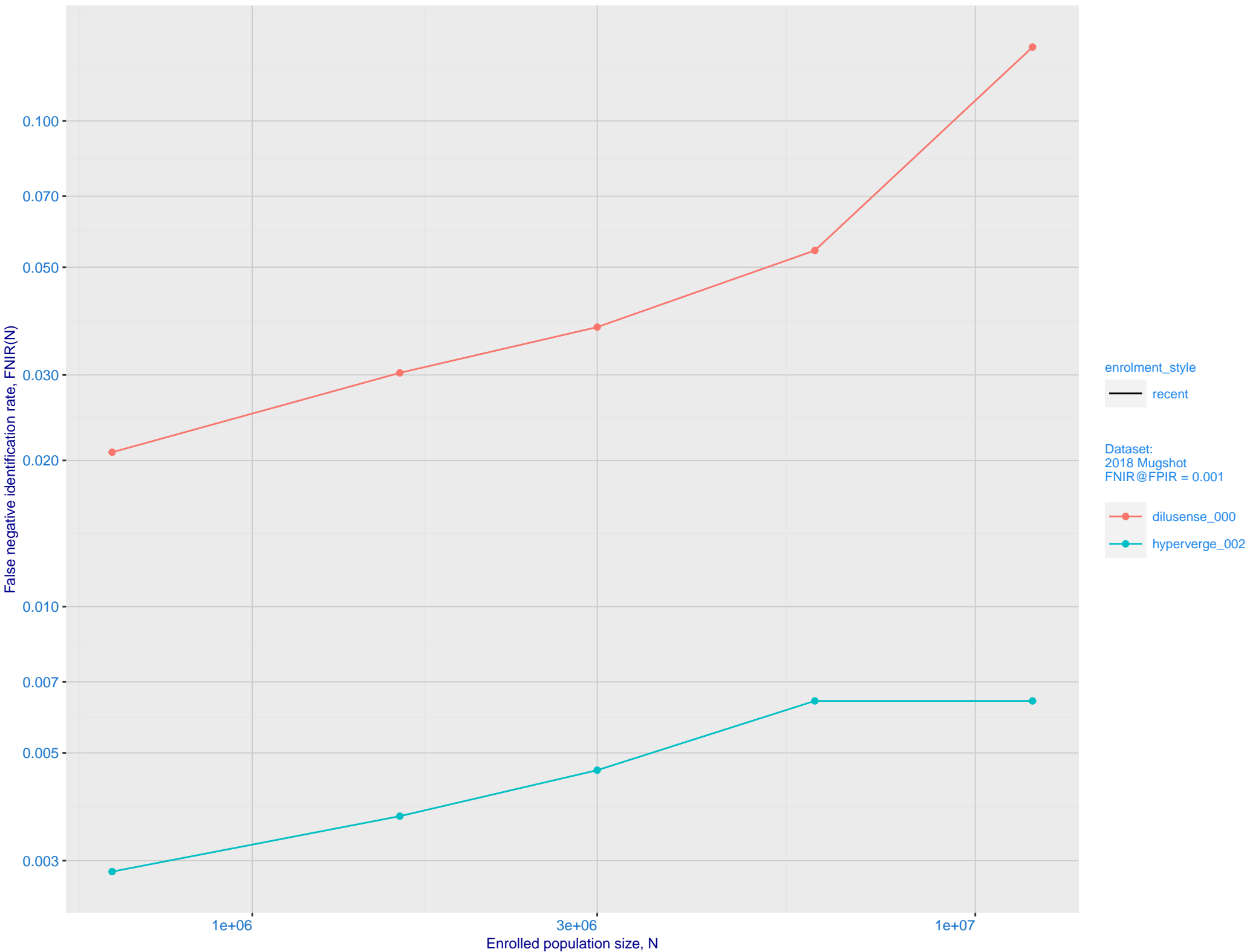
Mugshot webcam ranking 109 (out of 313) –– FNIR(1600000, T, L+1) = 0.0780, FPIR=0.001000 vs. lowest 0.0093 from sensetime_007

Mugshot profile ranking 38 (out of 283) –– FNIR(1600000, T, L+1) = 0.6549, FPIR=0.001000 vs. lowest 0.1093 from cloudwalk_mt_000
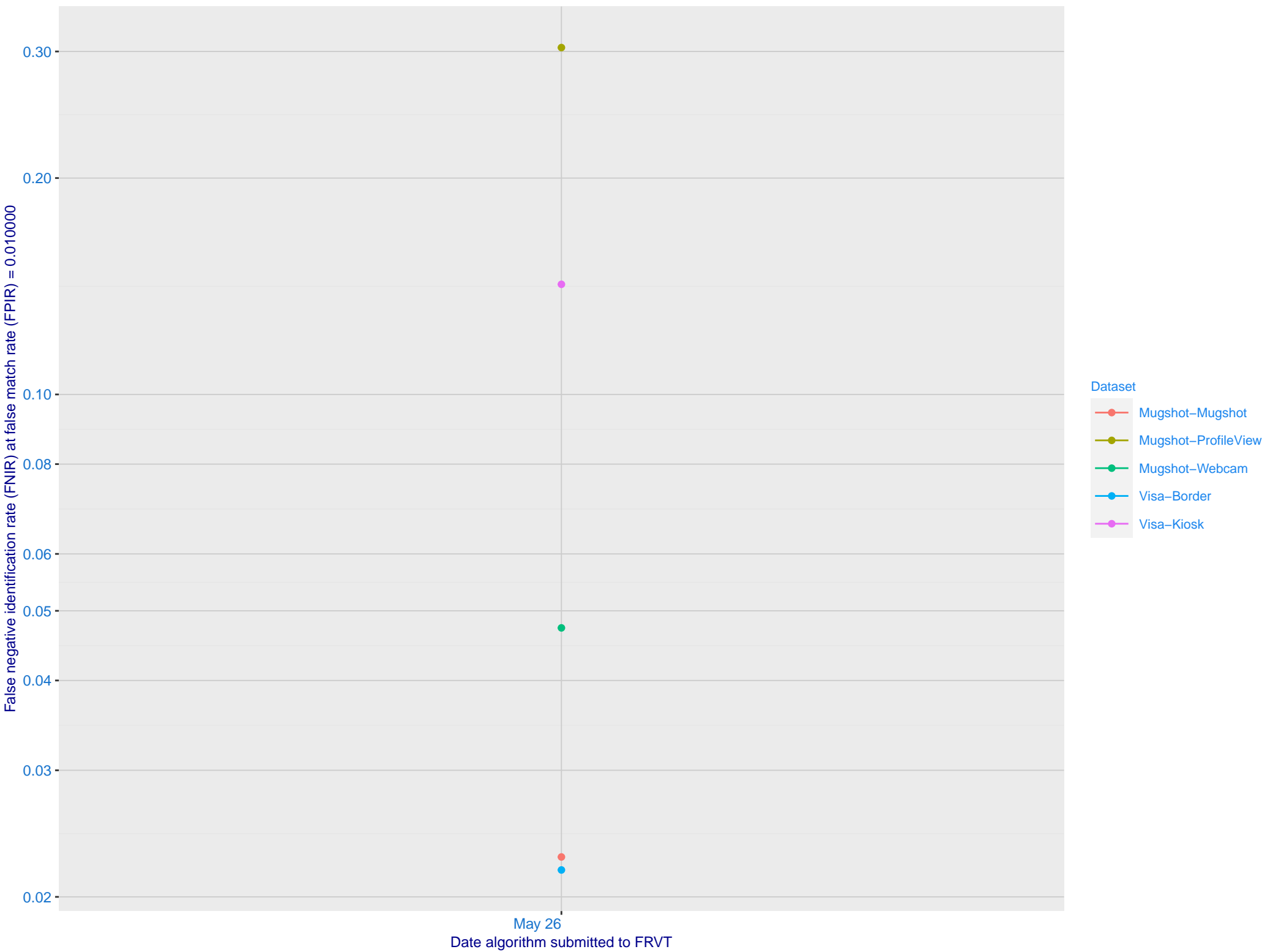
Immigration visa–border ranking 98 (out of 241) –– FNIR(1600000, T, L+1) = 0.0387, FPIR=0.001000 vs. lowest 0.0024 from cloudwalk_mt_000

Immigration visa–kiosk ranking 60 (out of 236) –– FNIR(1600000, T, L+1) = 0.2030, FPIR=0.001000 vs. lowest 0.0719 from cloudwalk_mt_000
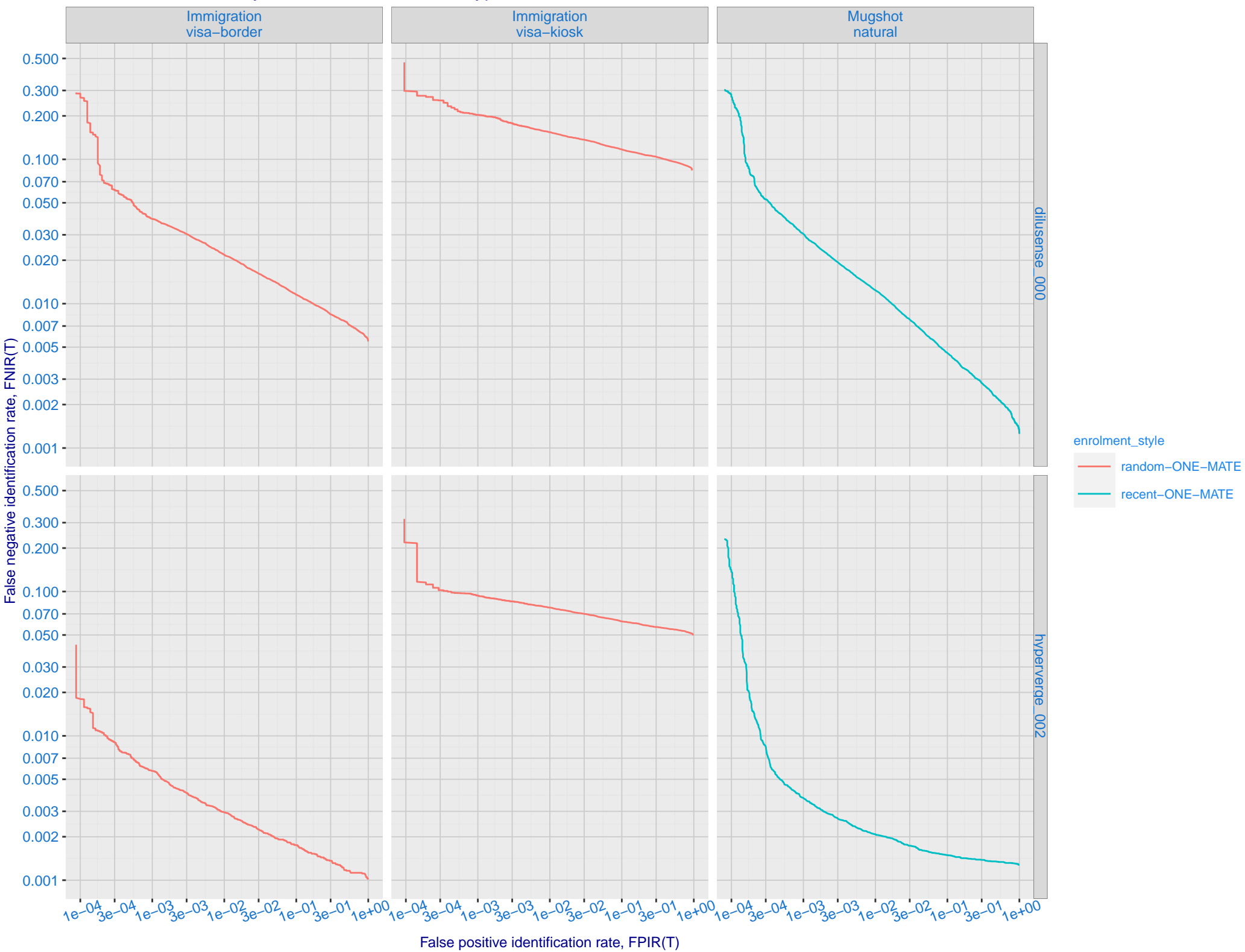
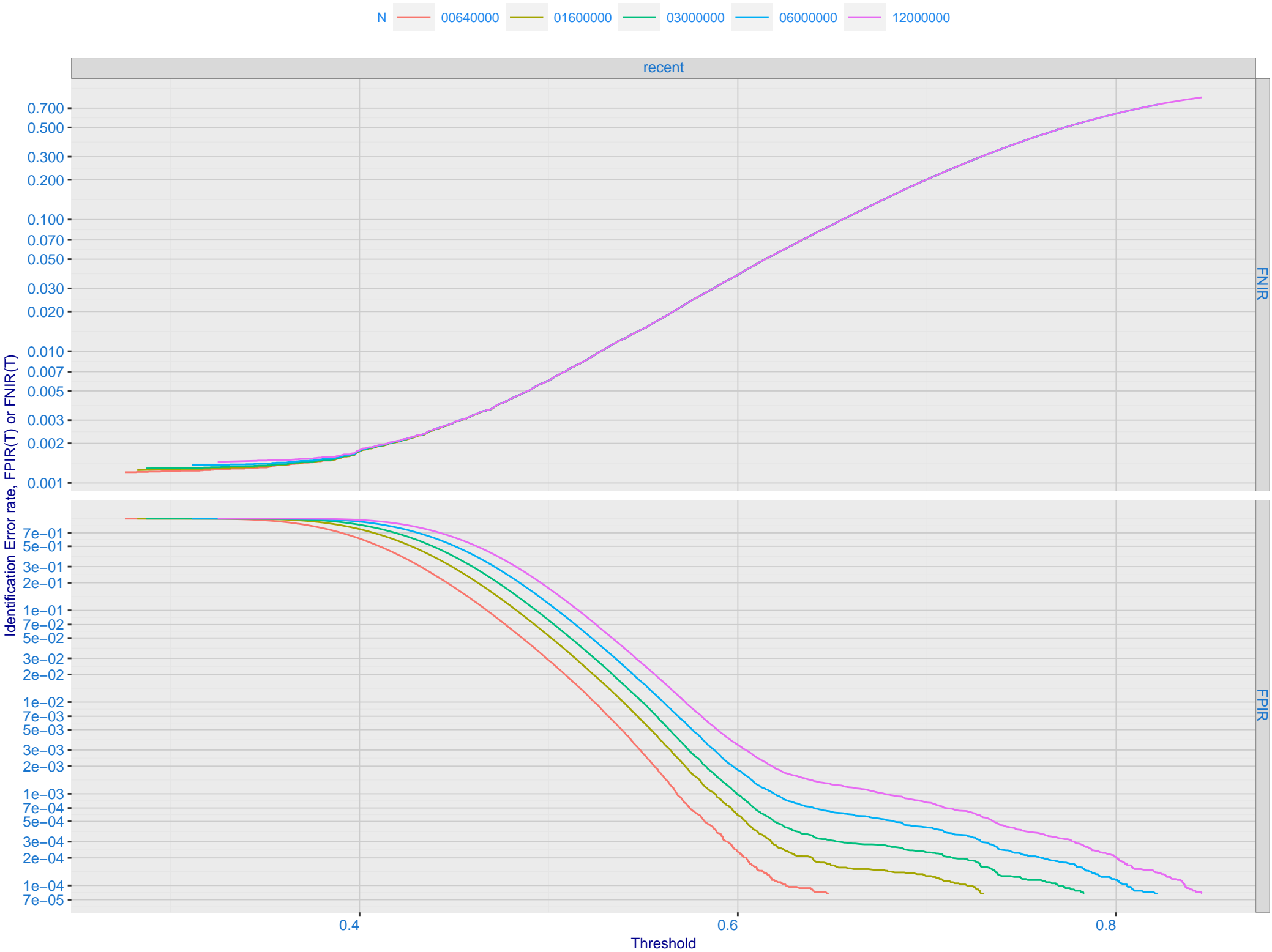B: Mugshot natural images, identification mode: FNIR(N, L+1, T) vs. most accurate (hyperverge_002)

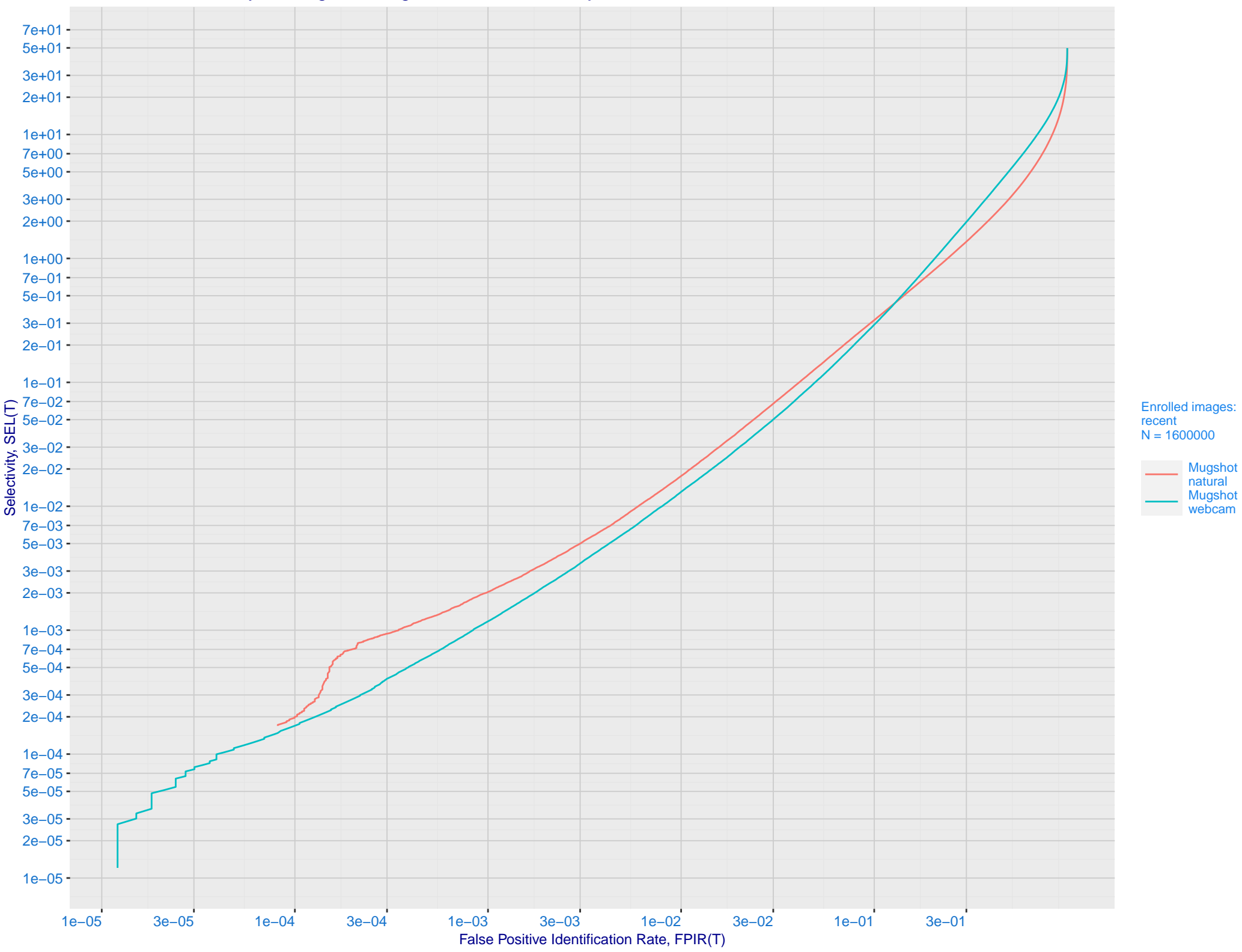C: Evolution of accuracy for DILUSENSE algorithms on three datasets 2018 – present

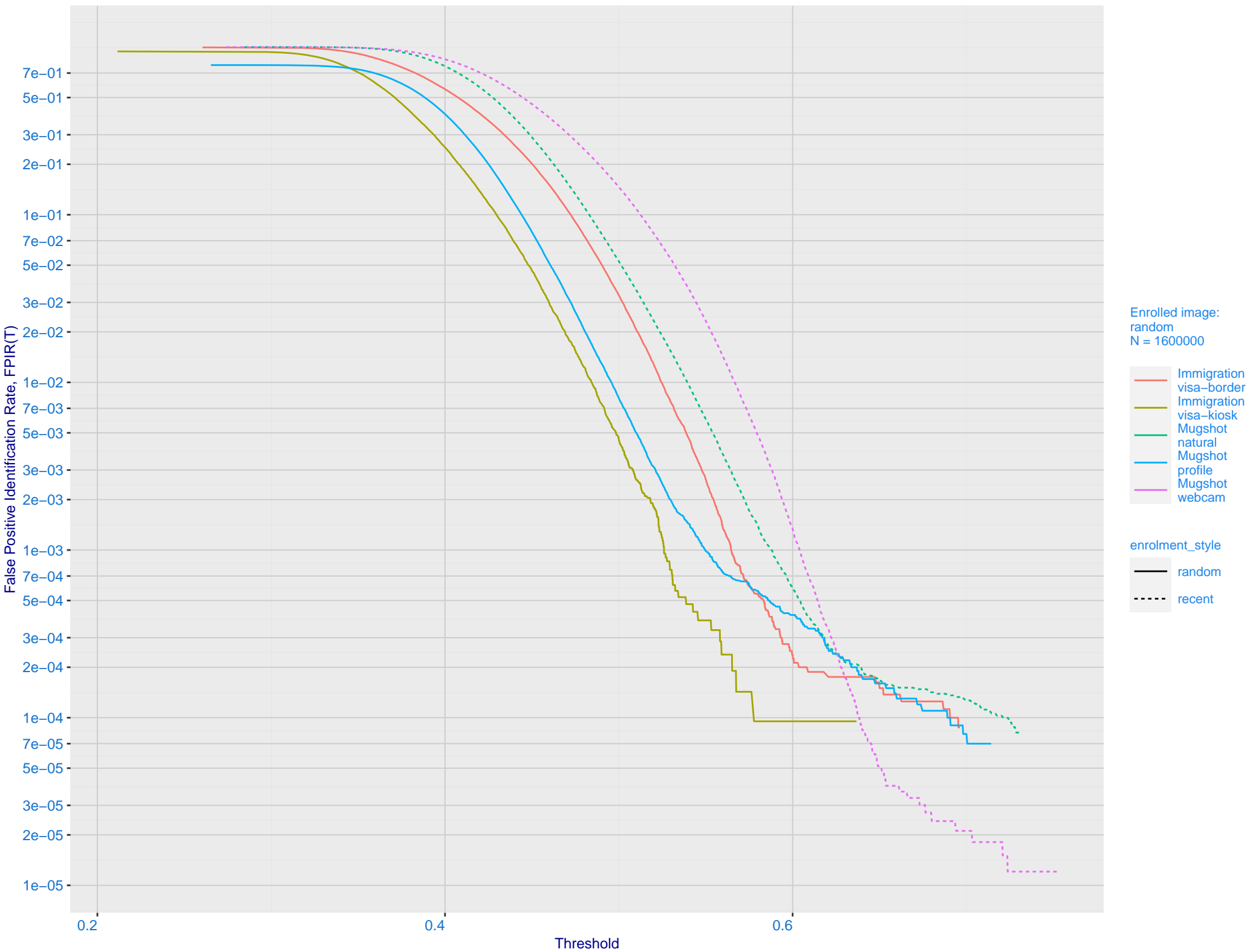D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals

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

Selectivity, SEL(T) — Y axis

False Positive Identification Rate, FPIR(T) — X axis

Enrolled images:
recent
N = 1600000

Mugshot natural
Mugshot webcam

G: FPIR dependence on T by probe type for N = 1600000 subjects
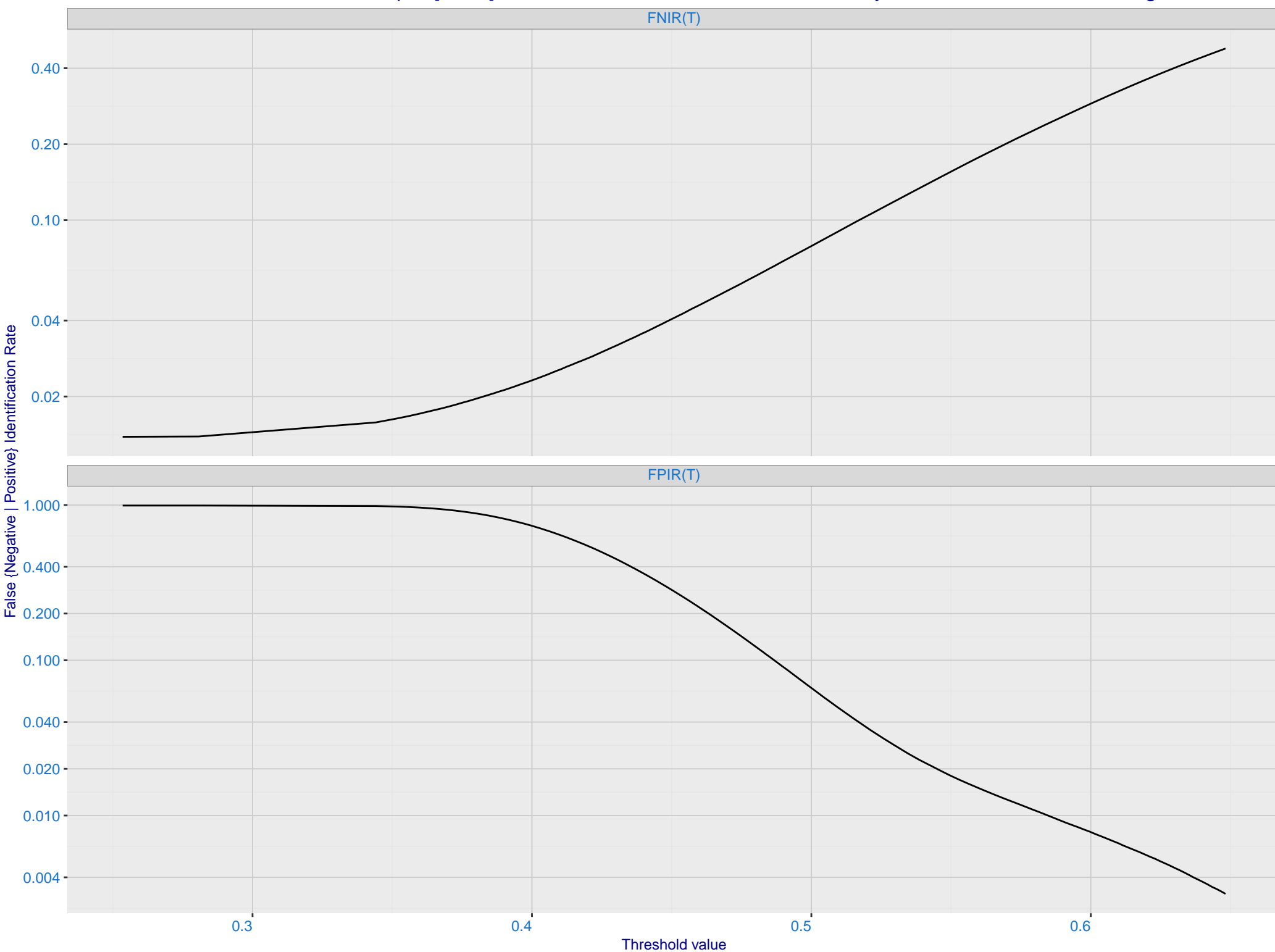
H: Reduced length candidate lists for human review
Dataset is border−border with time−lapse [10,15] YRS with N = 1600000. Probes are 10−15 years later than enrollment image
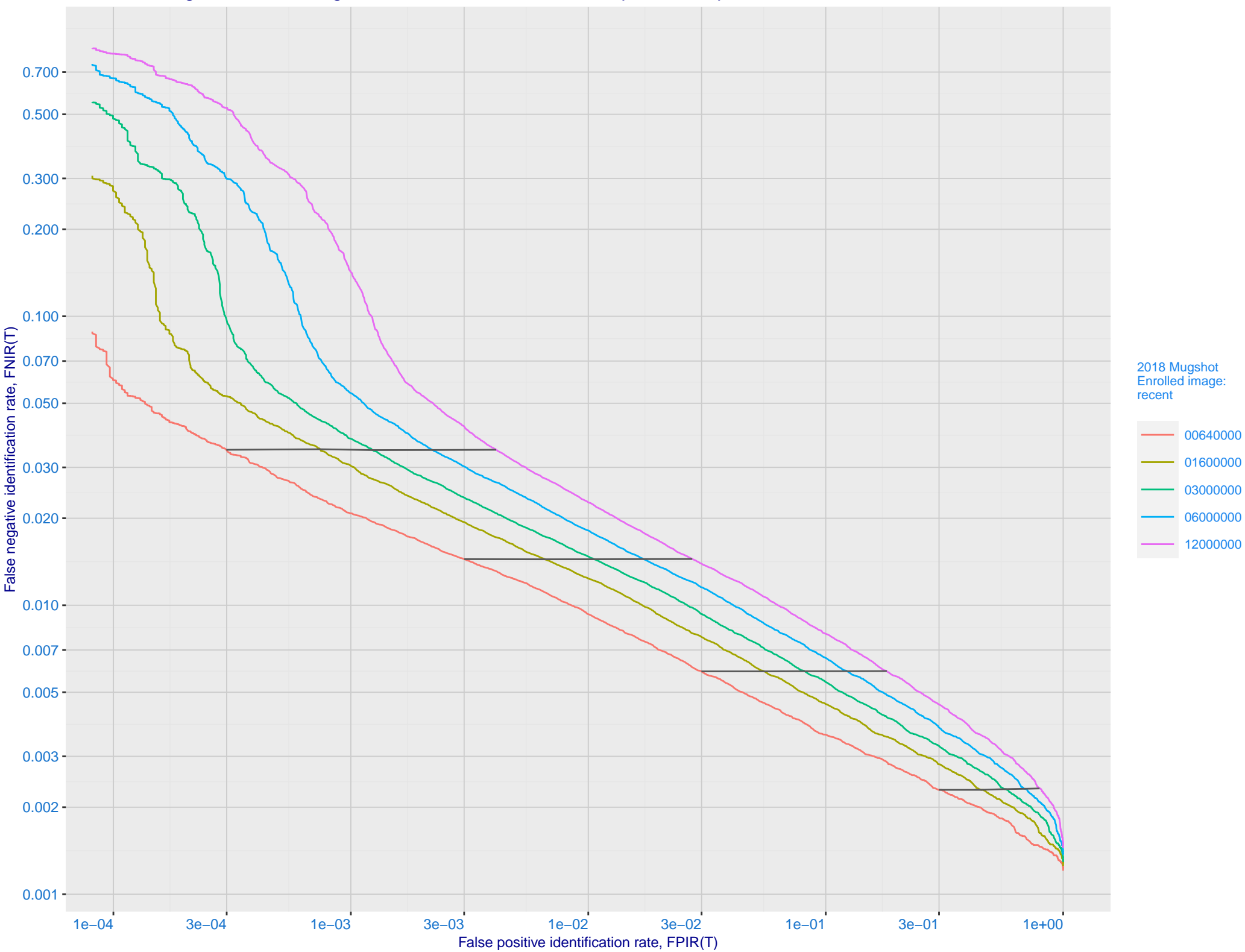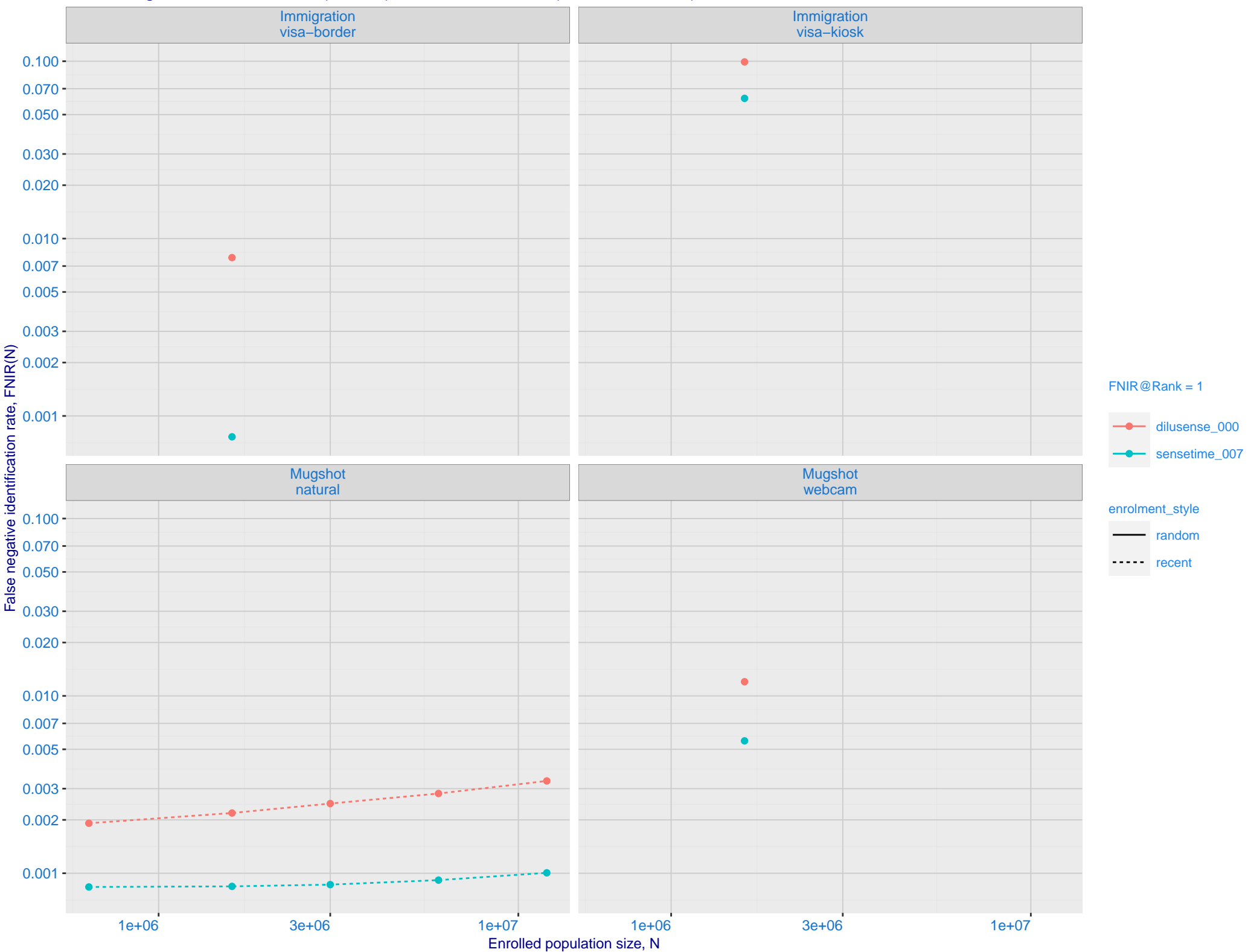
I: FNIR and FPIR dependence on threshold
Dataset is border−border with time−lapse [10,15] YRS with N = 1600000. Probes are 10−15 years later than enrollment image
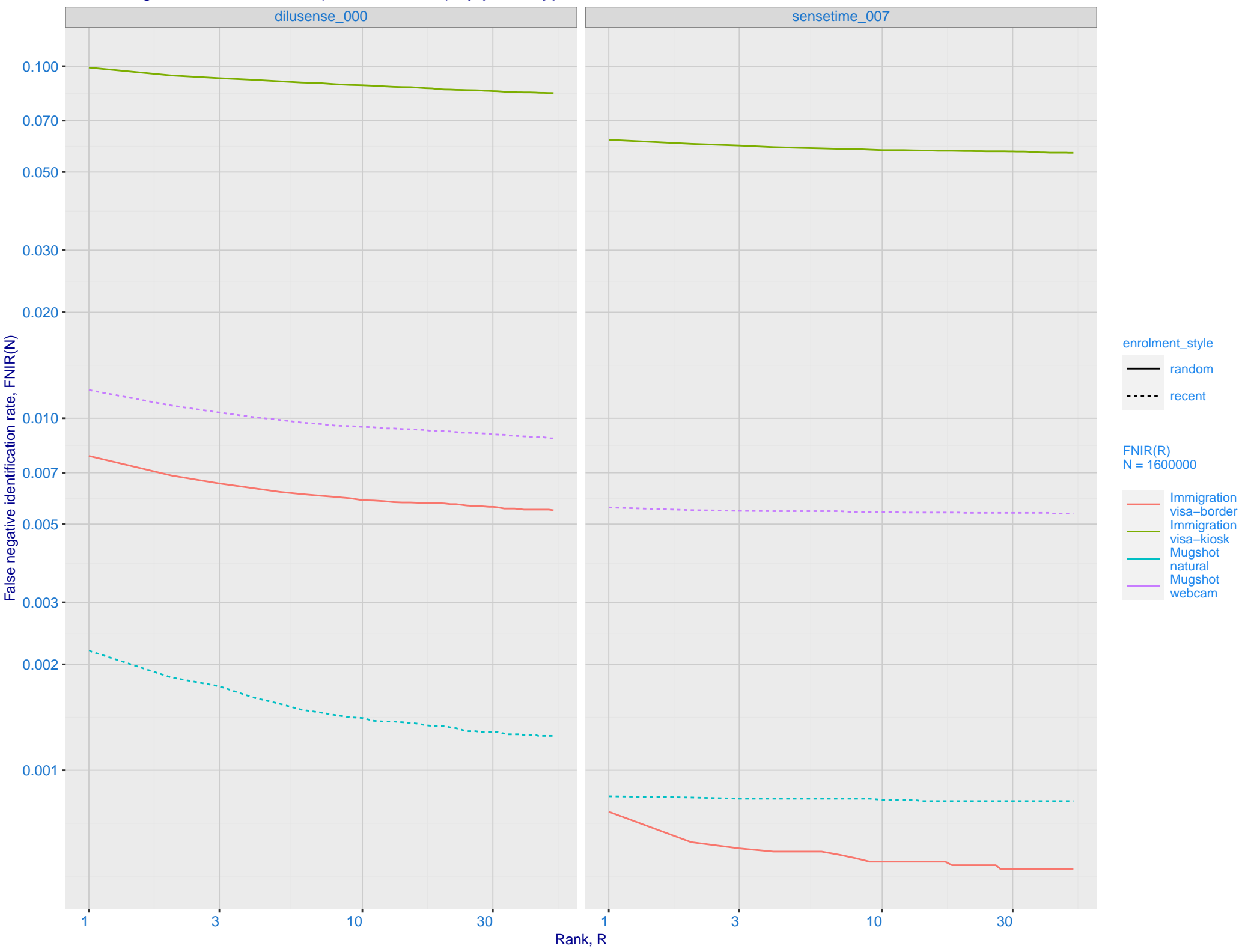
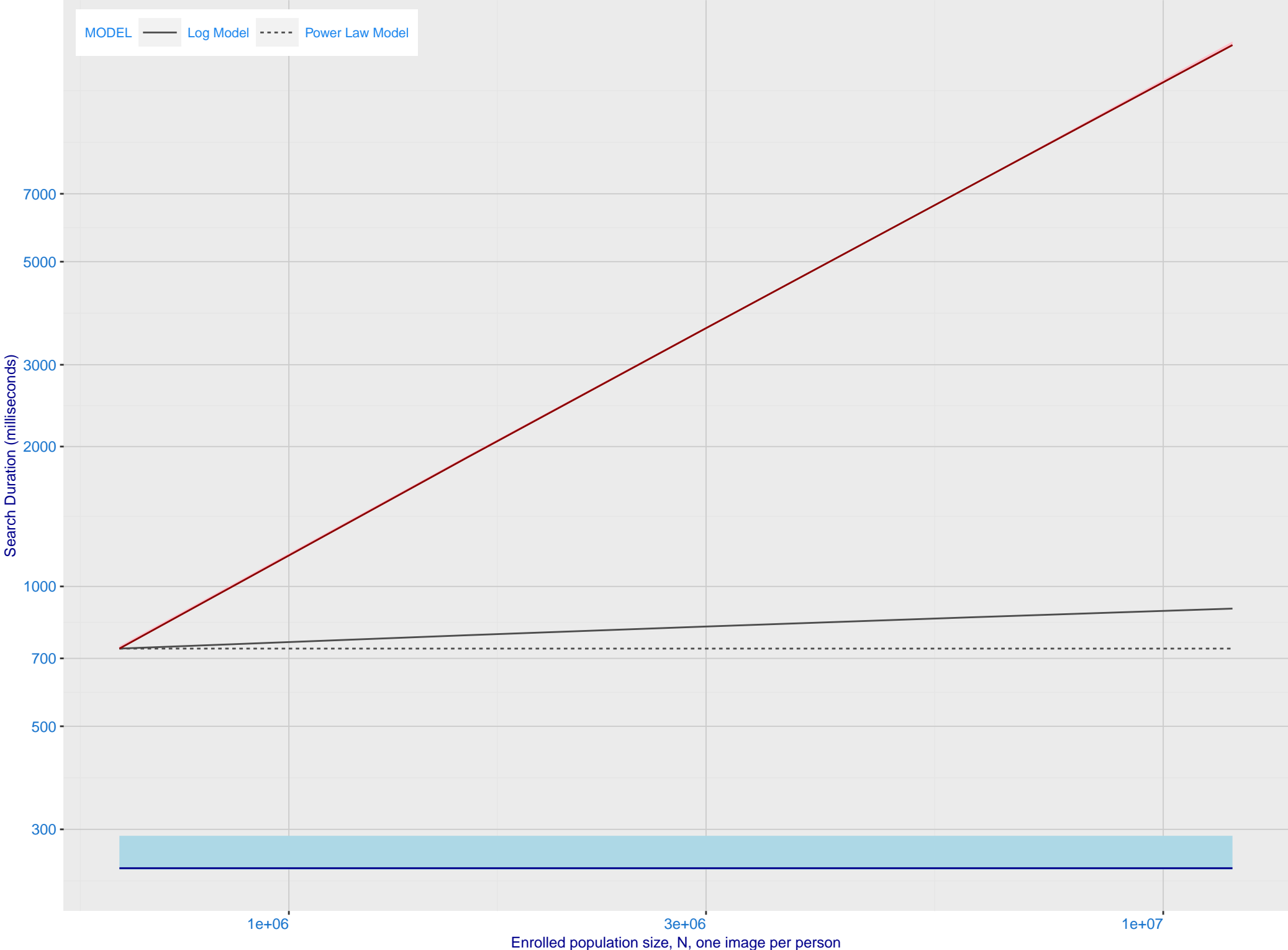J: DET for Mugshot natural images and various N. Links connect points of equal threshold.

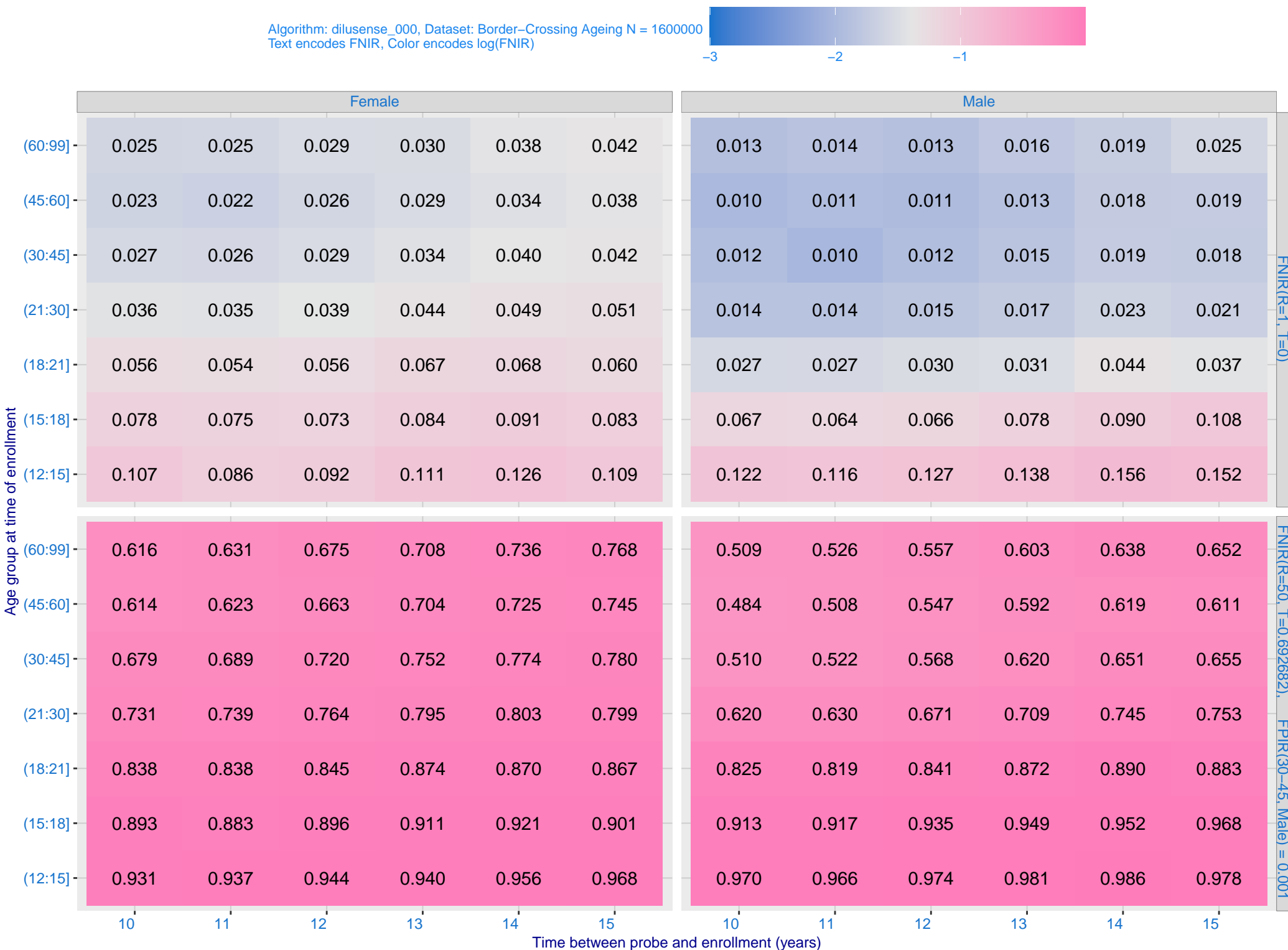K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_007)

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
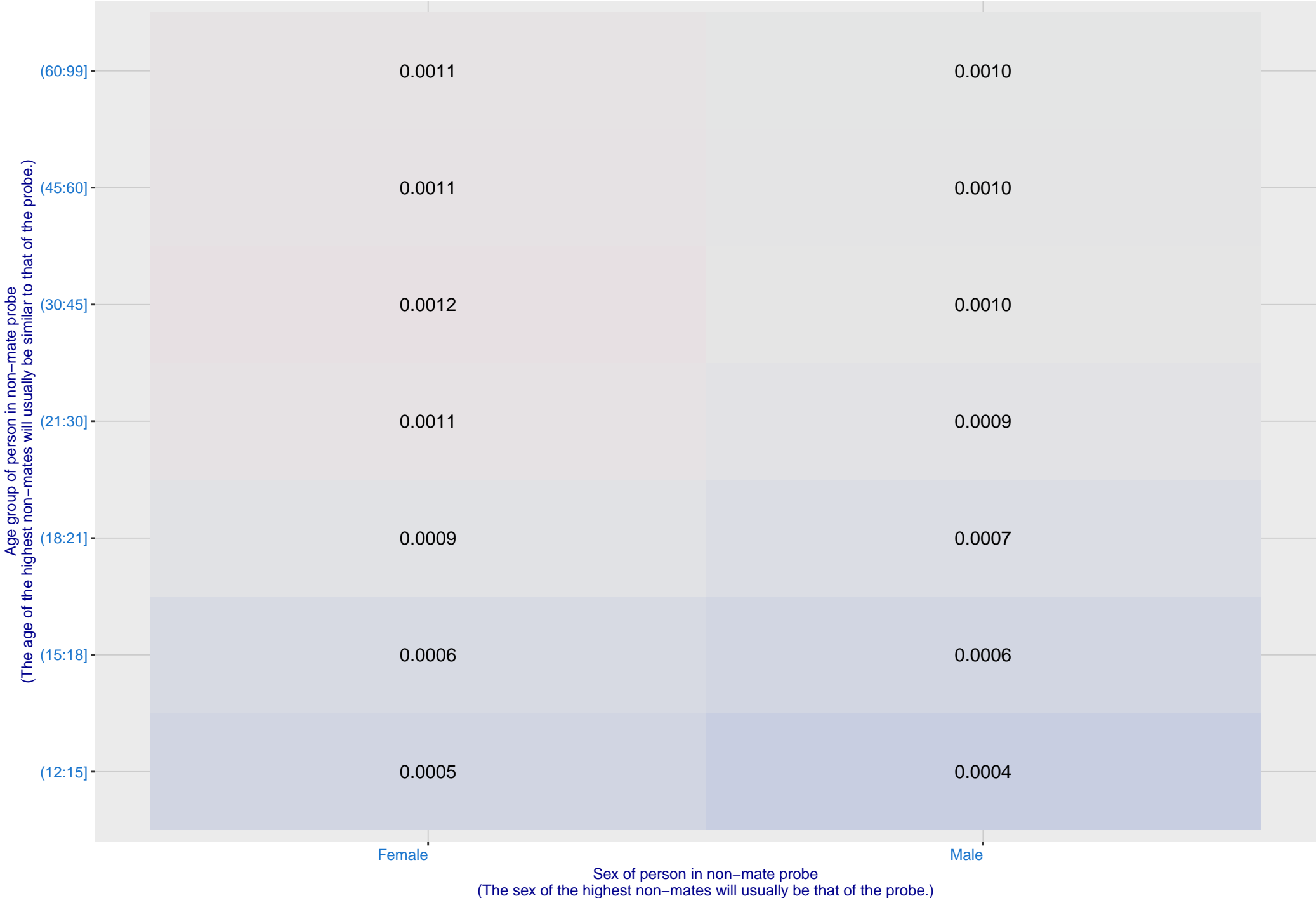
O: FNIR(T, N = 1.6 million) by sex, age and time−lapse. The top row gives investigational rank−1 miss rates. The bottom panels give high threshold for more lights−out identification with low FPIR.

Algorithm: dilusense_000, 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.

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