

A: Datasheet

Algorithm: visionlabs\_008

Developer: VisionLabs

Submission Date: 2019\_06\_18

Template size: 512 bytes

Template time (2.5 percentile): 272 msec

Template time (median): 272 msec

Template time (97.5 percentile): 298 msec

Investigation:

Frontal mugshot ranking 66 (out of 329) -- FNIR(1600000, 0, 1) = 0.0020 vs. lowest 0.0009 from sensetime\_006

Mugshot webcam ranking 74 (out of 291) -- FNIR(1600000, 0, 1) = 0.0136 vs. lowest 0.0057 from sensetime\_006

Mugshot profile ranking 33 (out of 260) -- FNIR(1600000, 0, 1) = 0.1409 vs. lowest 0.0550 from sensetime\_006

Immigration visa--border ranking 25 (out of 218) -- FNIR(1600000, 0, 1) = 0.0023 vs. lowest 0.0009 from sensetime\_006

Immigration visa--kiosk ranking 34 (out of 215) -- FNIR(1600000, 0, 1) = 0.0806 vs. lowest 0.0487 from cubox\_000

Identification:

Frontal mugshot ranking 49 (out of 329) -- FNIR(1600000, T, L+1) = 0.0130, FPIR=0.001000 vs. lowest 0.0017 from nec\_005

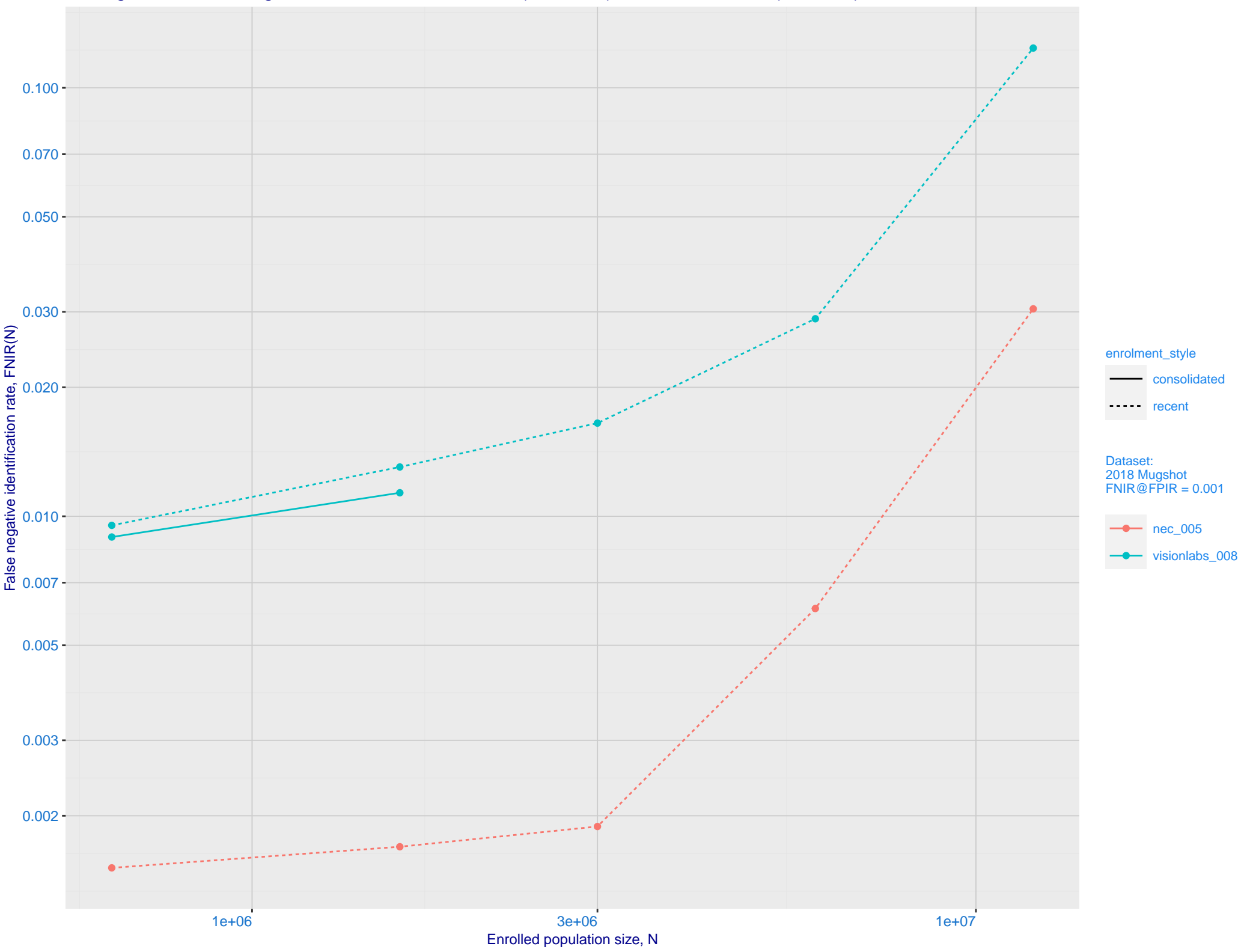
Mugshot webcam ranking 54 (out of 289) -- FNIR(1600000, T, L+1) = 0.0515, FPIR=0.001000 vs. lowest 0.0120 from nec\_005

Mugshot profile ranking 19 (out of 259) -- FNIR(1600000, T, L+1) = 0.4814, FPIR=0.001000 vs. lowest 0.1331 from cloudwalk\_hr\_000

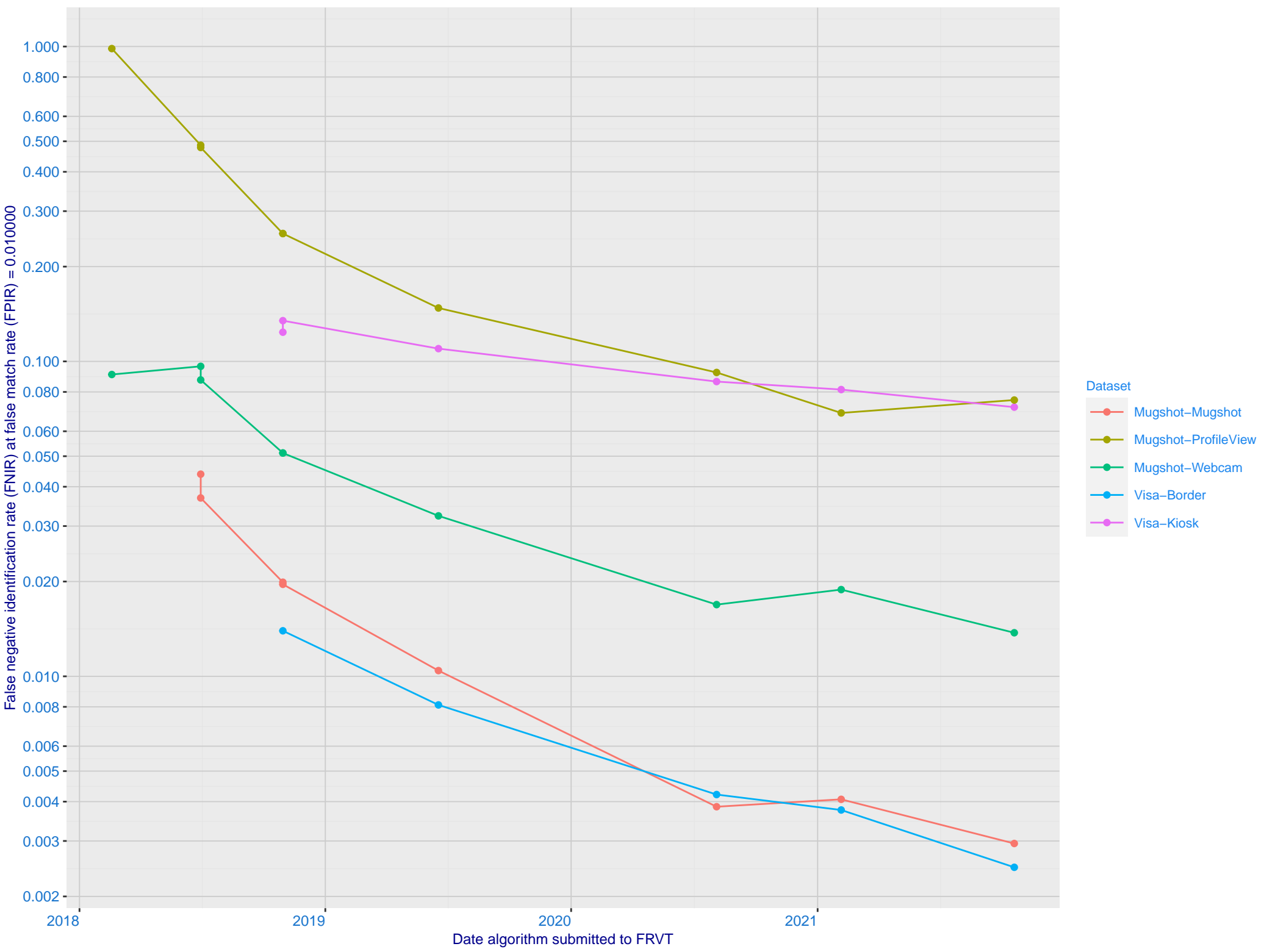
Immigration visa--border ranking 38 (out of 217) -- FNIR(1600000, T, L+1) = 0.0167, FPIR=0.001000 vs. lowest 0.0032 from paravision\_009

Immigration visa--kiosk ranking 27 (out of 212) -- FNIR(1600000, T, L+1) = 0.1525, FPIR=0.001000 vs. lowest 0.0728 from paravision\_009

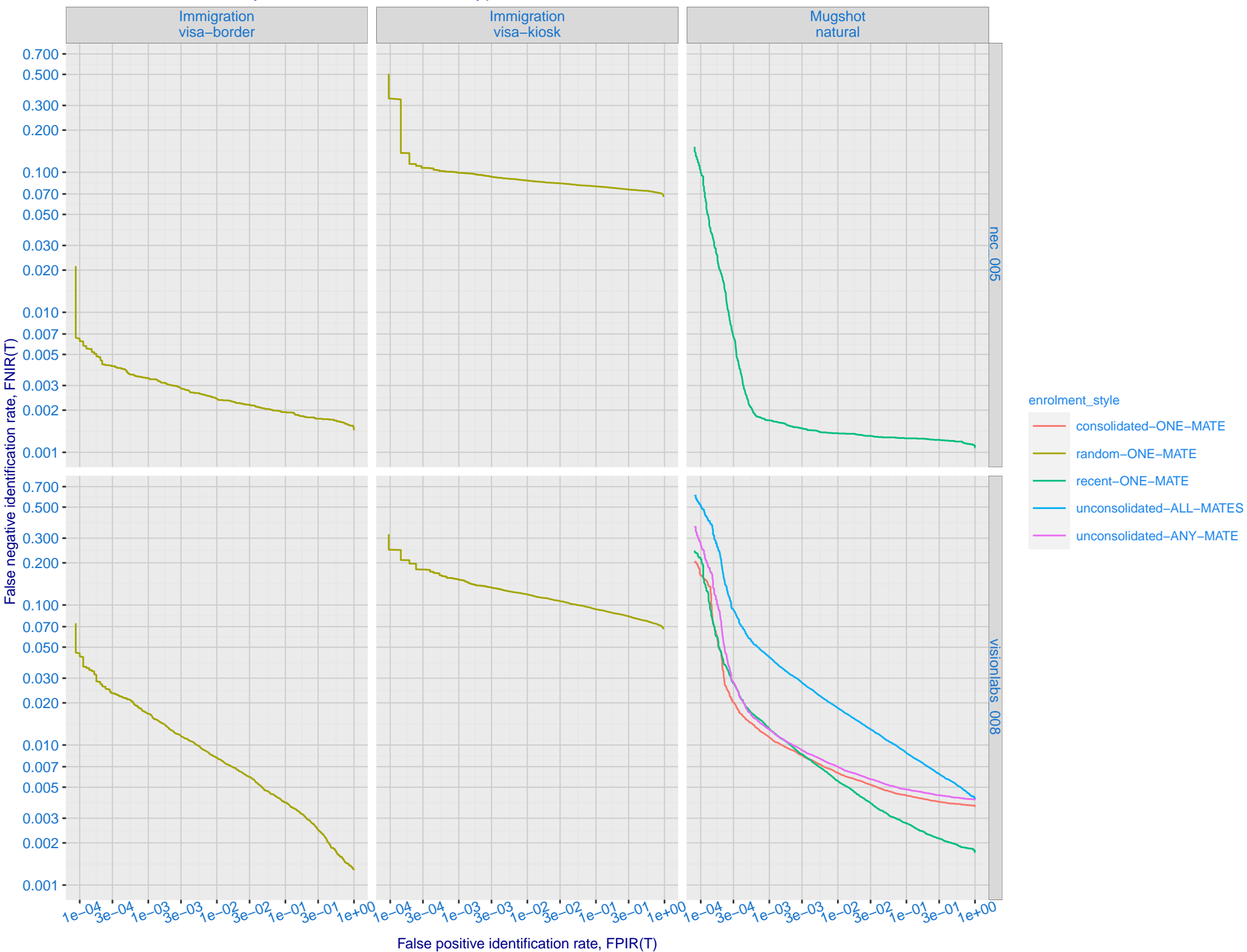
B: Mugshot natural images, identification mode: FNIR(N, L+1, T) vs. most accurate (nec\_005)



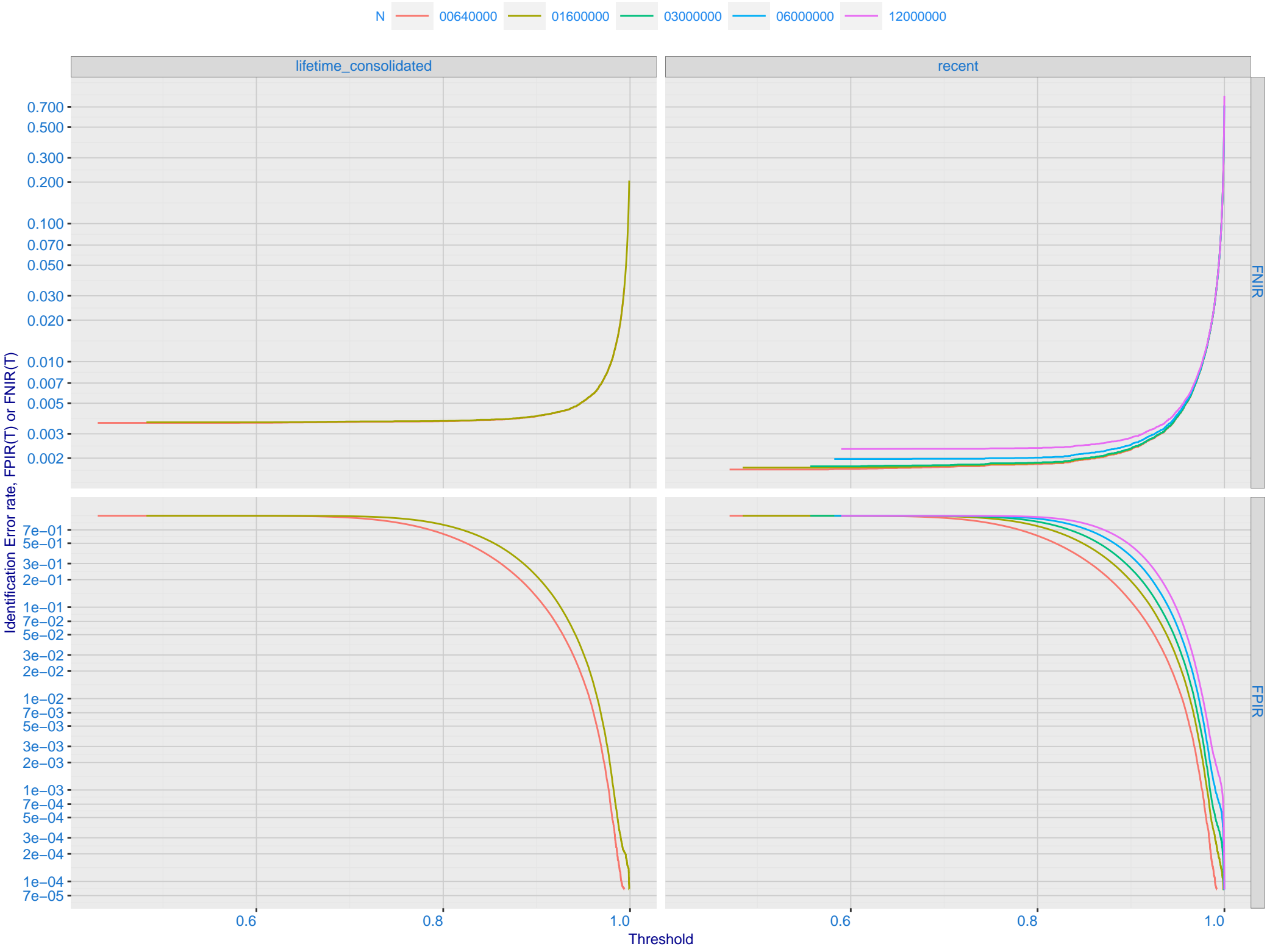
C: Evolution of accuracy for VISIONLABS algorithms on three datasets 2018 – present



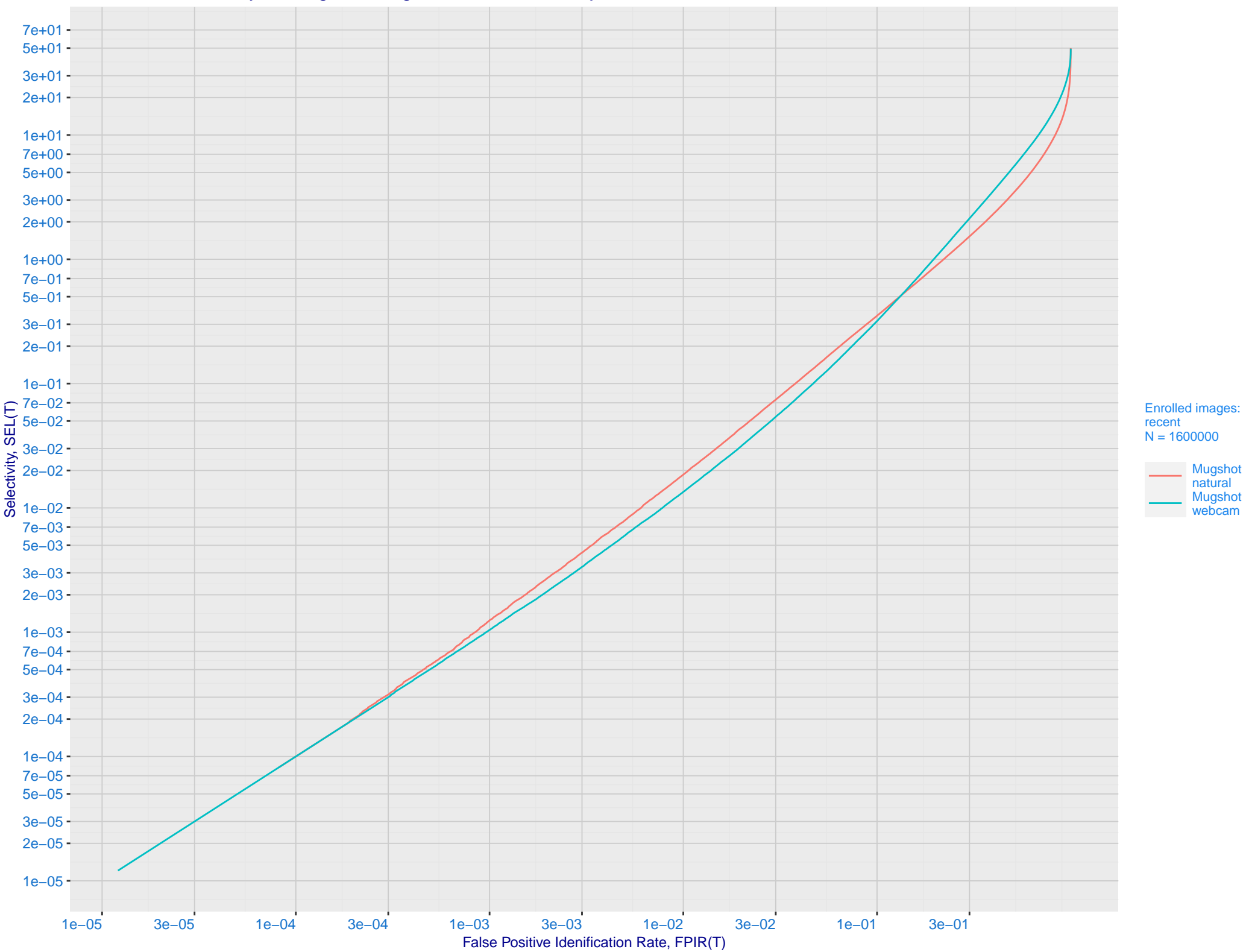
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals



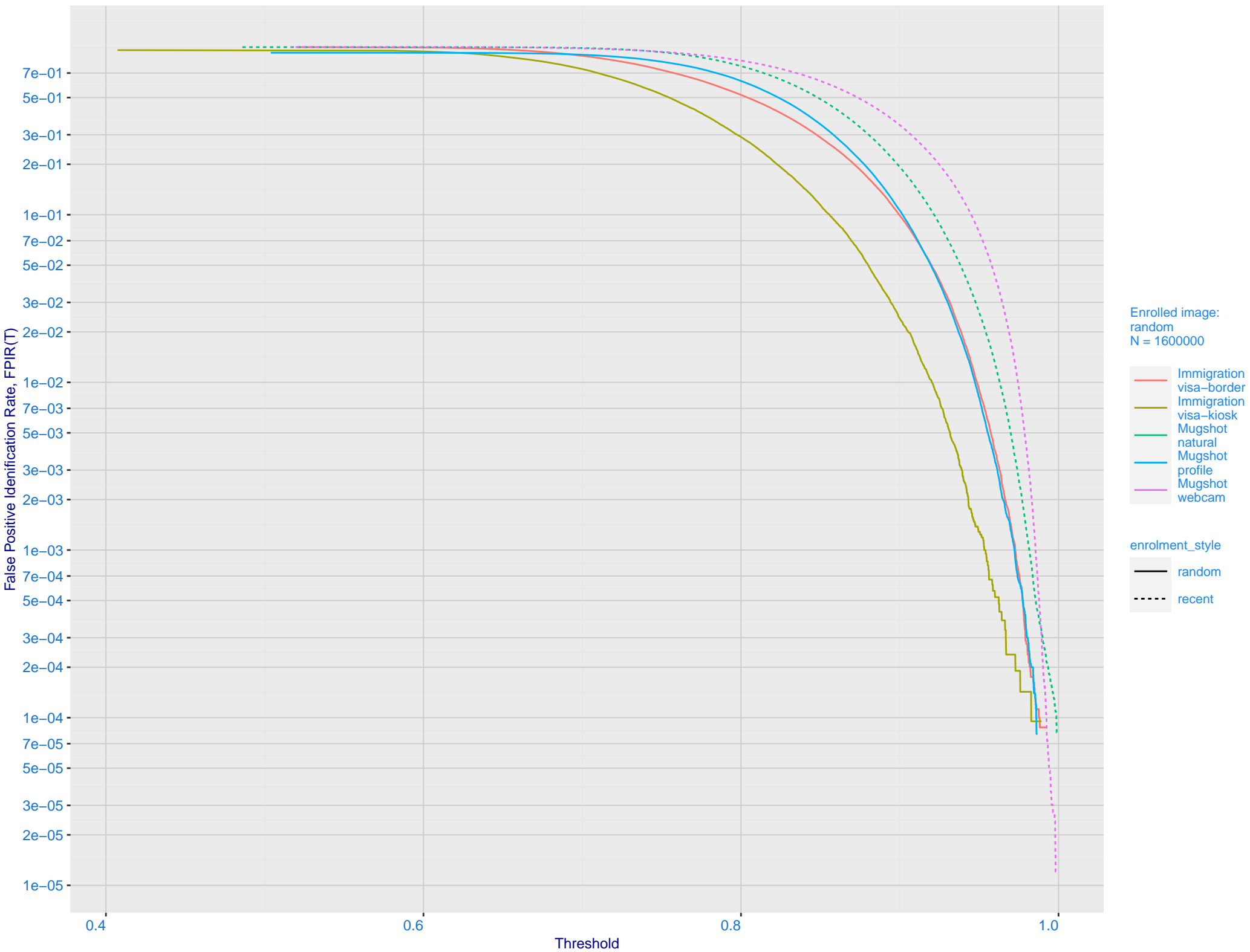
E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



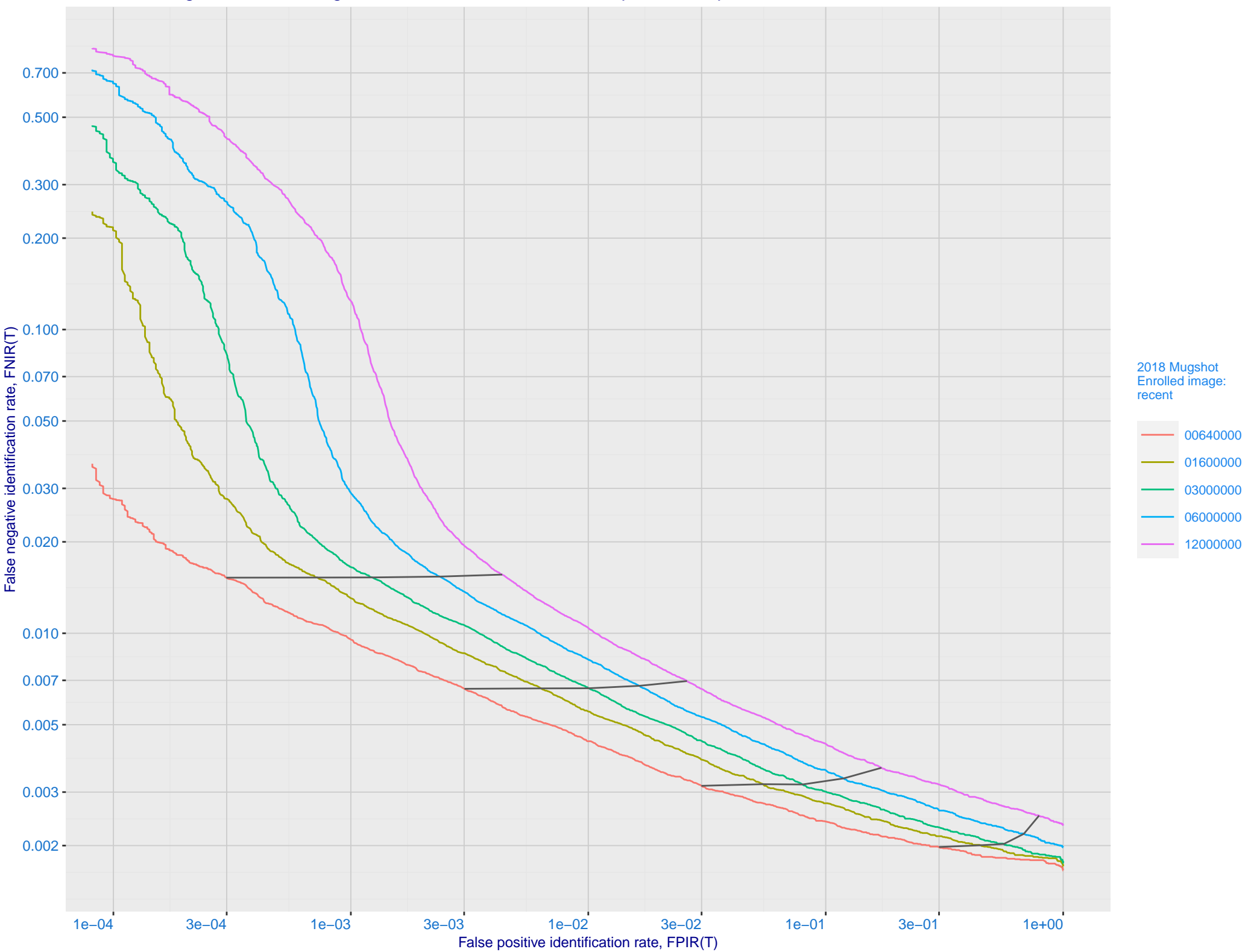
F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate



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

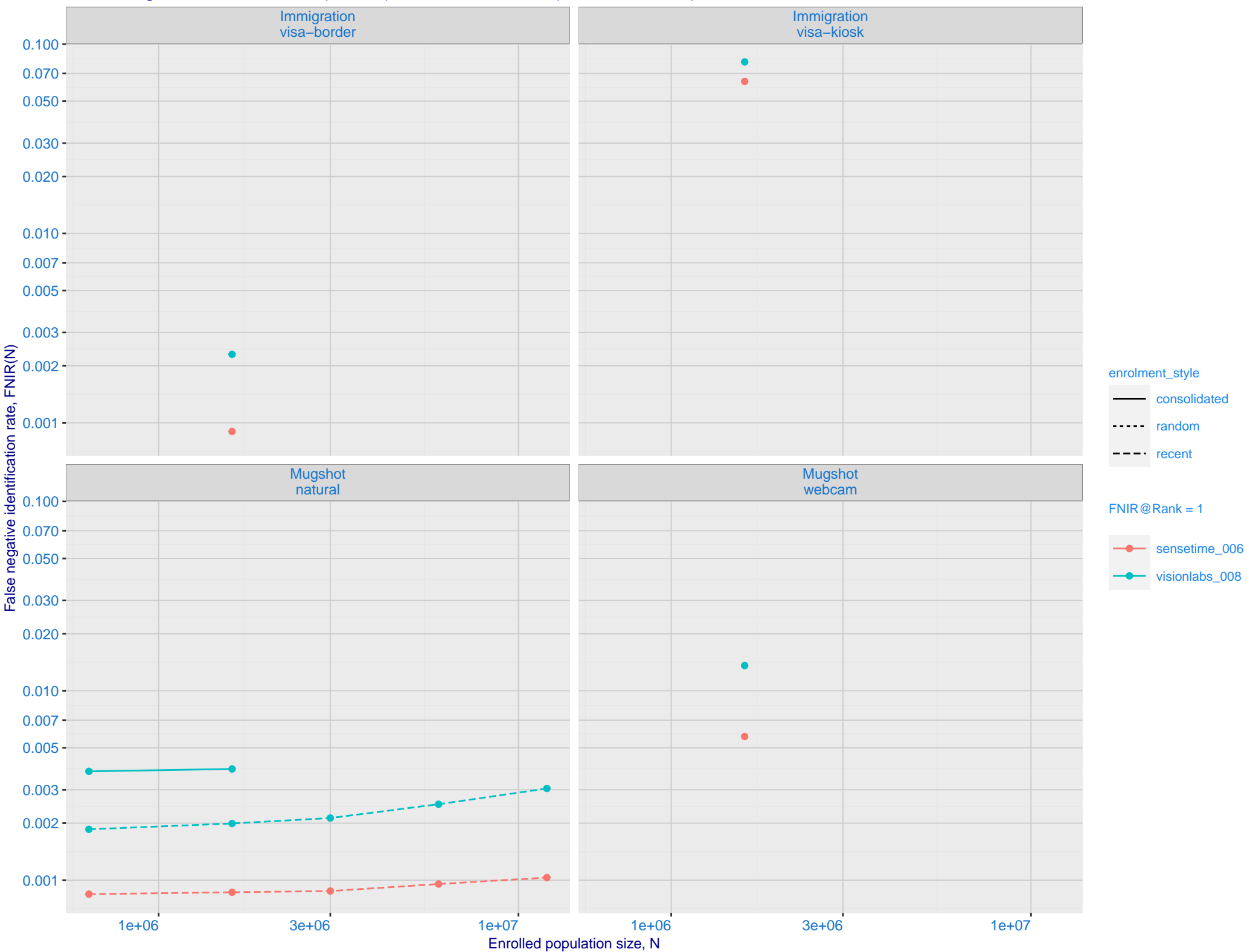


J: DET for Mugshot natural images and various N. Links connect points of equal threshold.

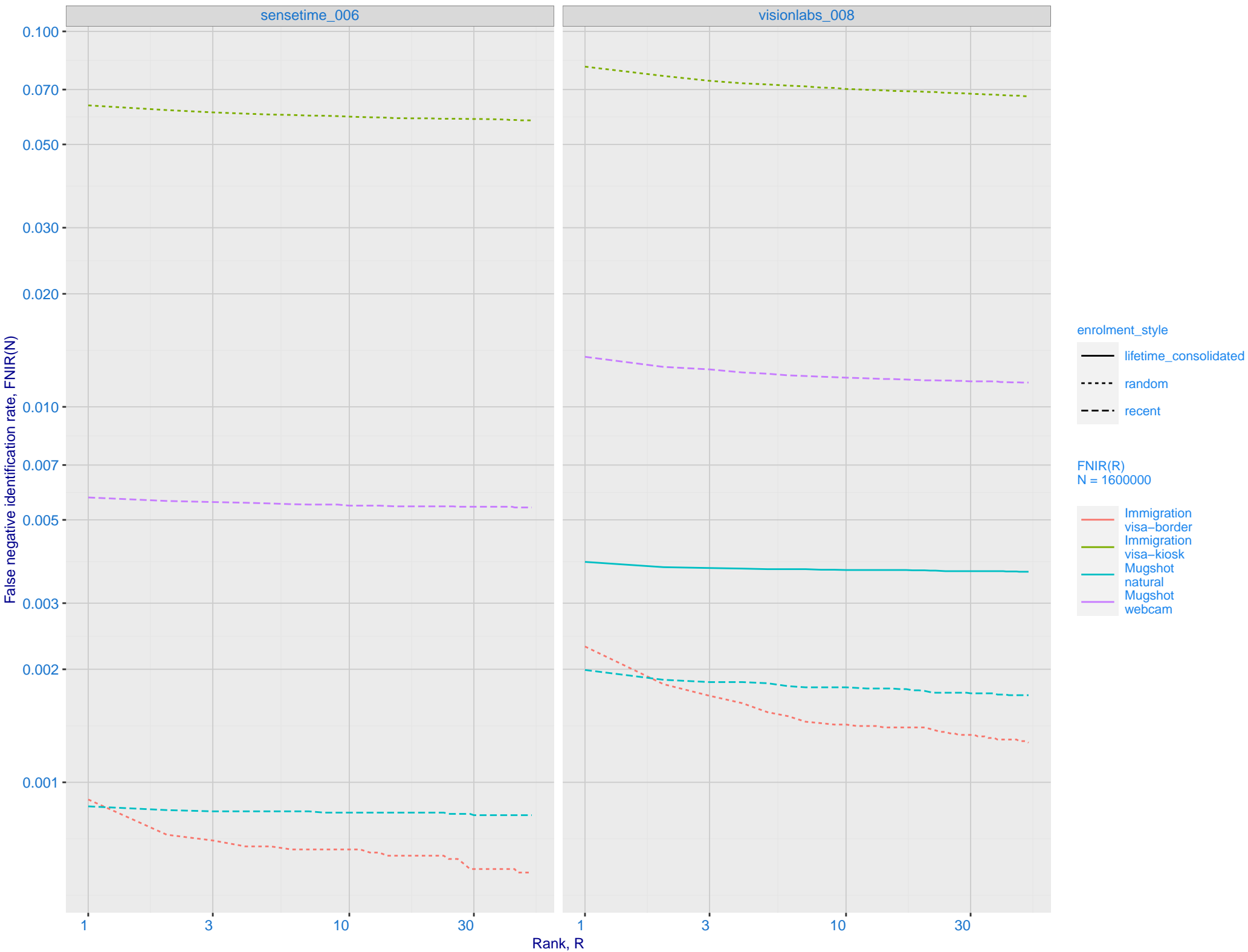




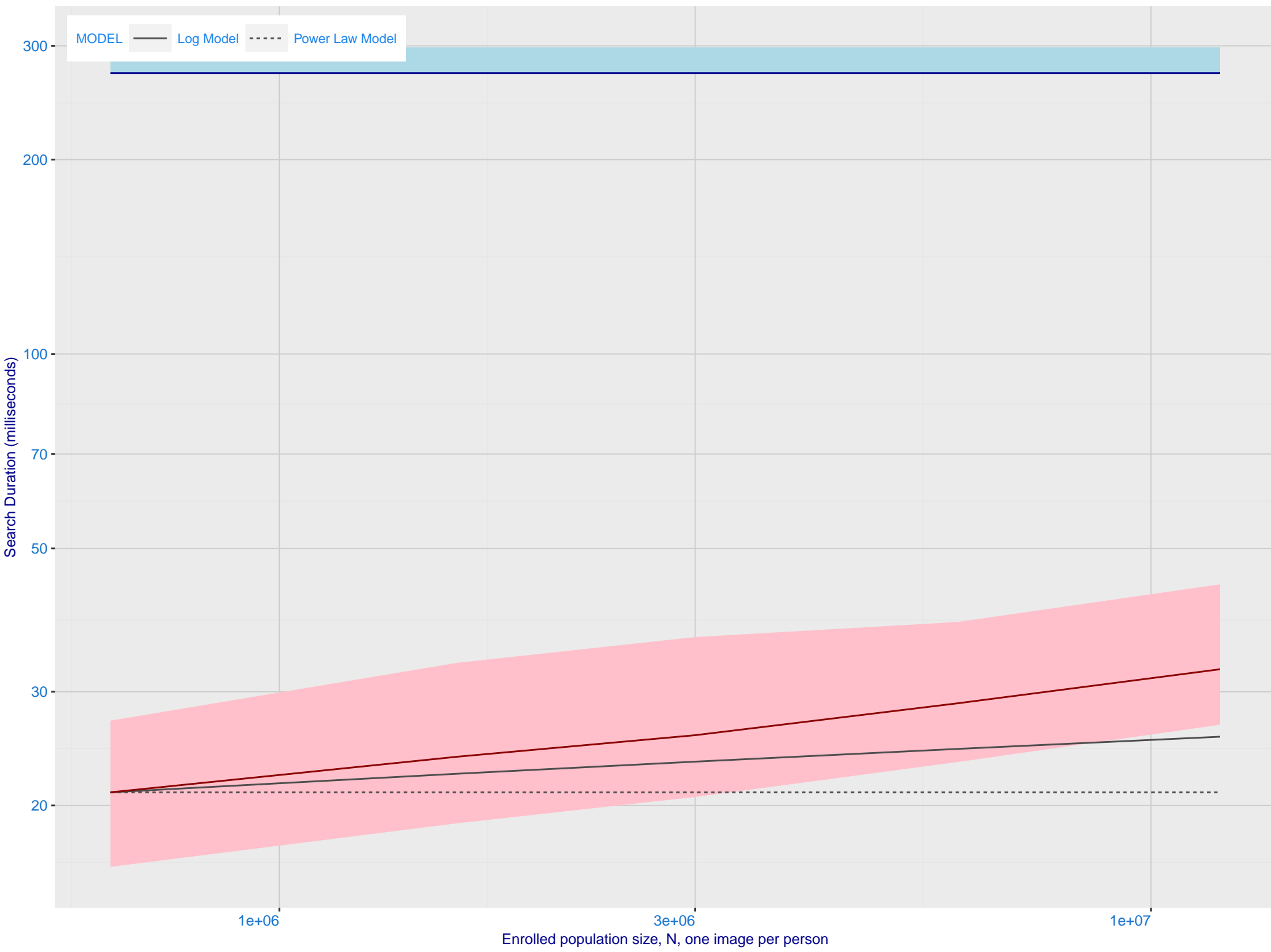
K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_006)



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

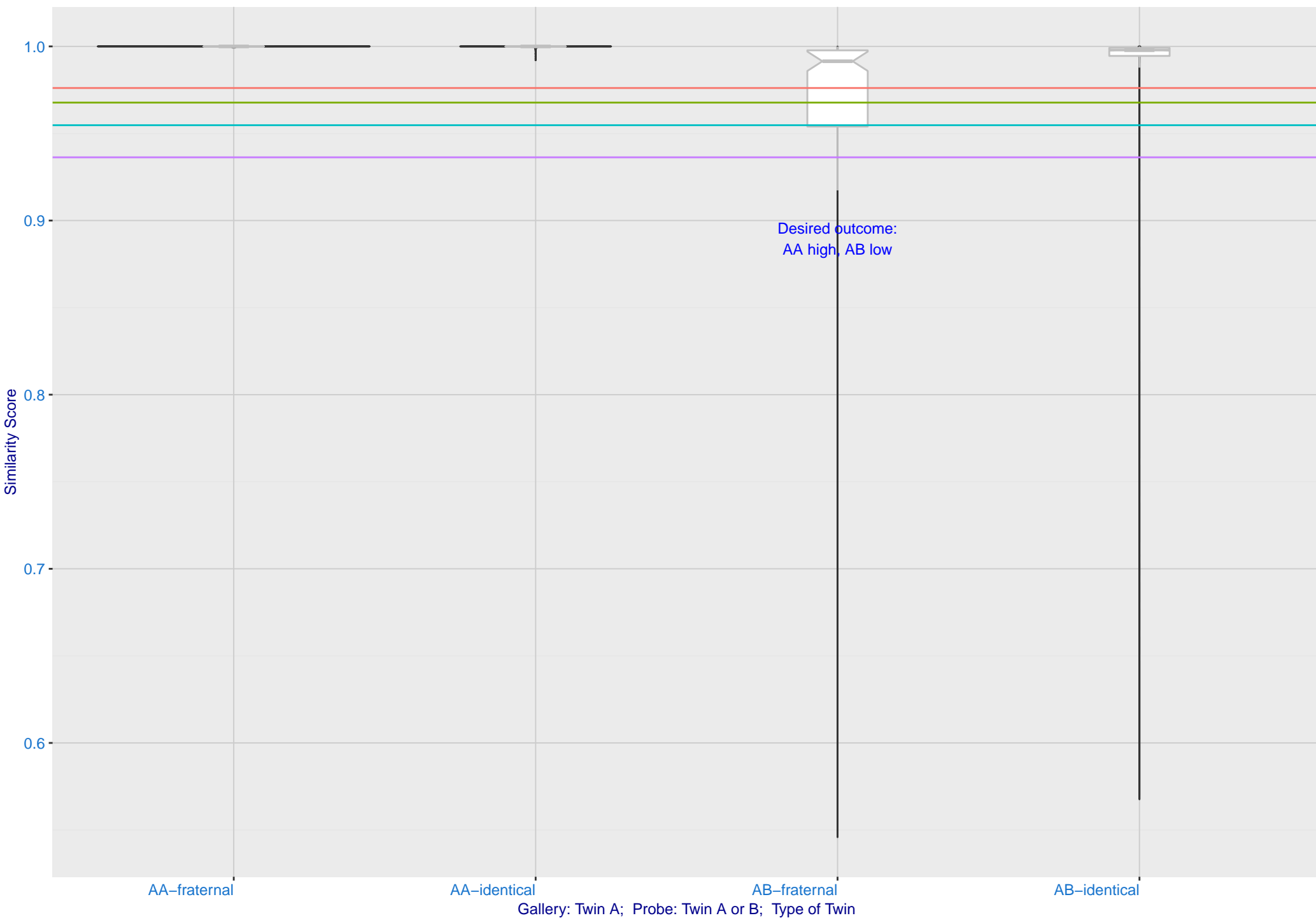


M: Template duration; search duration vs. N. The blue and pink ribbon covers 95 percent of observed measurements. The template generation time is independent of N. The log and power-law models are fit to the first two (N,T) observations



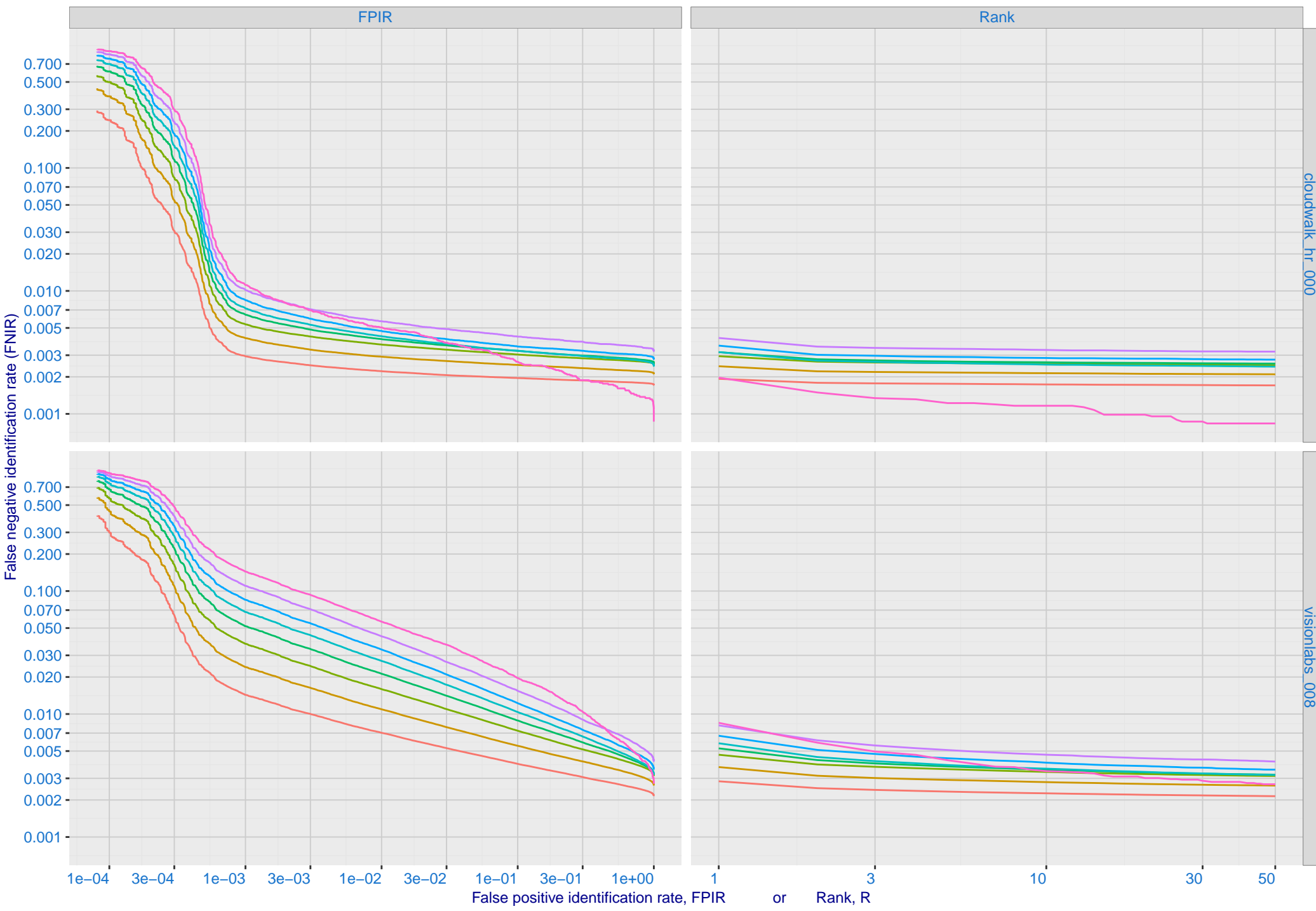
# N: Solo-Twin and Twin-Twin similarity scores

TVAL FPIR = 0.001 FPIR = 0.003 FPIR = 0.010 FPIR = 0.030



# 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

