

A: Datasheet

Algorithm: idemia\_4

Developer: Idemia

Submission Date: 2018\_06\_21

Template size: 528 bytes

Template time (2.5 percentile): 644 msec

Template time (median): 661 msec

Template time (97.5 percentile): 732 msec

Investigation:

Frontal mugshot ranking 109 (out of 279) -- FNIR(1600000, 0, 1) = 0.0066 vs. lowest 0.0009 from sensetime\_005

Mugshot webcam ranking 125 (out of 241) -- FNIR(1600000, 0, 1) = 0.0317 vs. lowest 0.0062 from sensetime\_005

Mugshot profile ranking 153 (out of 210) -- FNIR(1600000, 0, 1) = 0.9474 vs. lowest 0.0587 from xforwardai\_002

Immigration visa-border ranking 88 (out of 168) -- FNIR(1600000, 0, 1) = 0.0175 vs. lowest 0.0013 from visionlabs\_010

Immigration visa-kiosk ranking 96 (out of 165) -- FNIR(1600000, 0, 1) = 0.2101 vs. lowest 0.0568 from cloudwalk\_hr\_000

Identification:

Frontal mugshot ranking 71 (out of 279) -- FNIR(1600000, T, L+1) = 0.0372, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

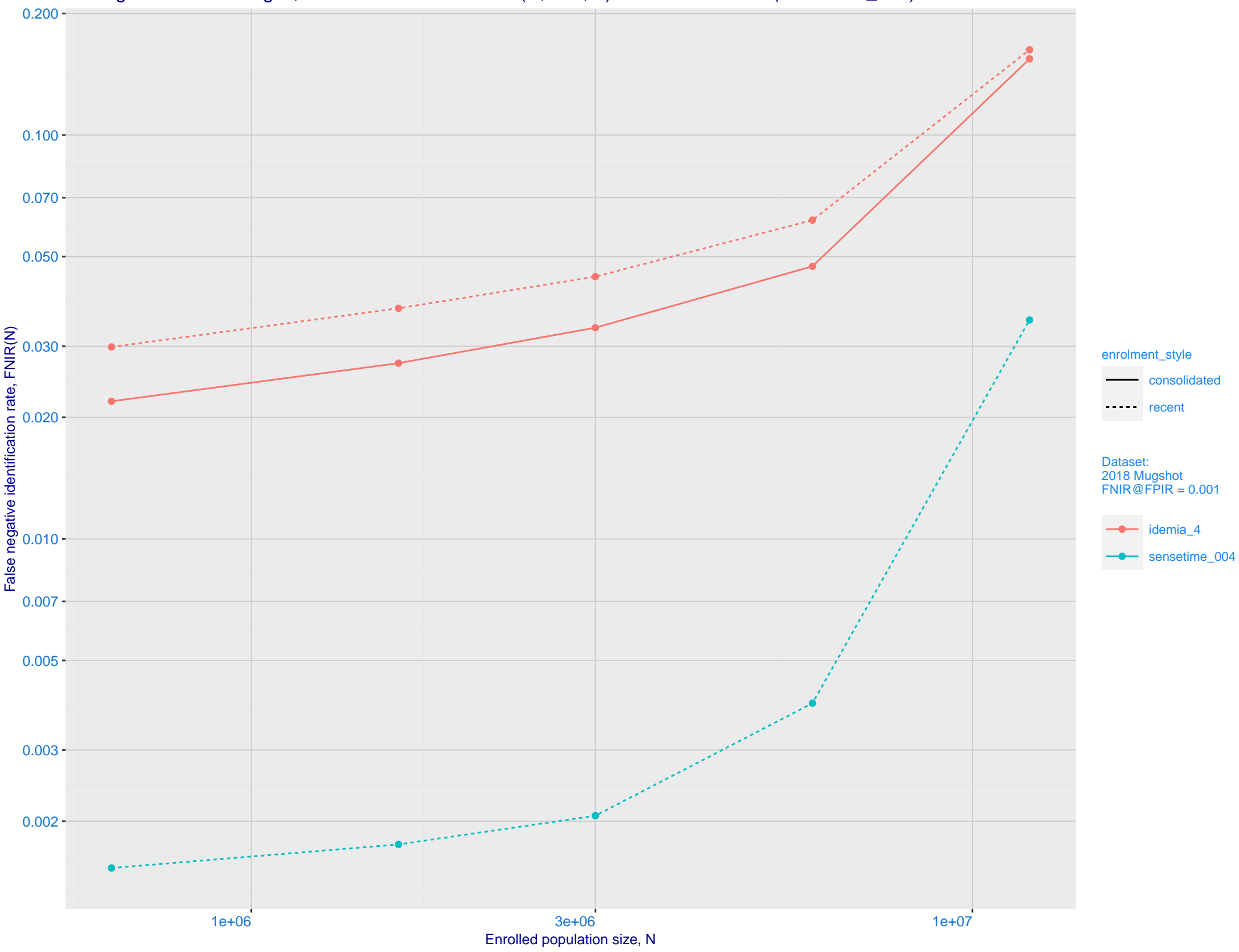
Mugshot webcam ranking 92 (out of 236) -- FNIR(1600000, T, L+1) = 0.1183, FPIR=0.001000 vs. lowest 0.0122 from sensetime\_003

Mugshot profile ranking 55 (out of 209) -- FNIR(1600000, T, L+1) = 0.9731, FPIR=0.001000 vs. lowest 0.1331 from cloudwalk\_hr\_000

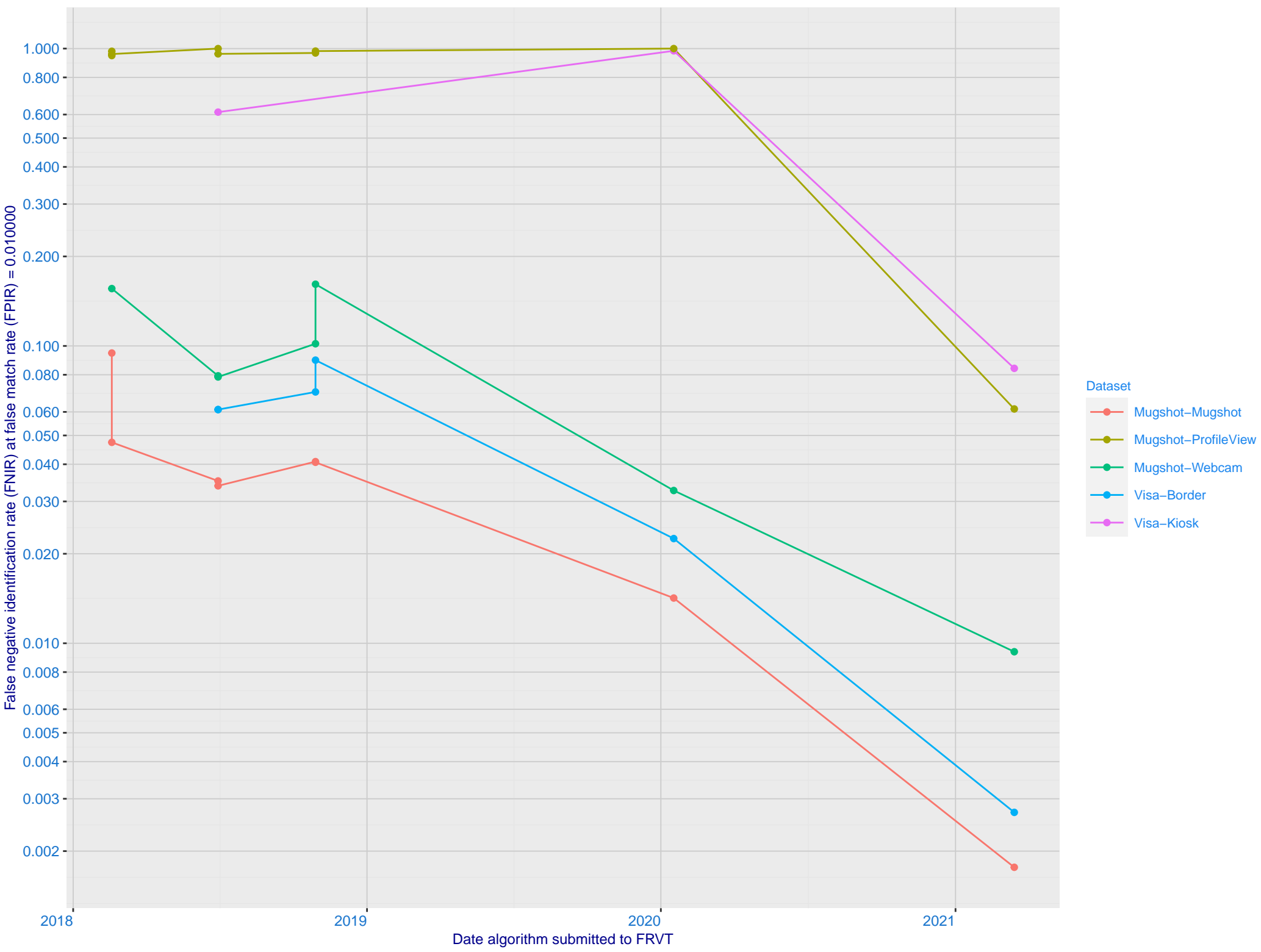
Immigration visa-border ranking 84 (out of 167) -- FNIR(1600000, T, L+1) = 0.1230, FPIR=0.001000 vs. lowest 0.0047 from idemia\_008

Immigration visa-kiosk ranking 96 (out of 162) -- FNIR(1600000, T, L+1) = 0.7692, FPIR=0.001000 vs. lowest 0.0996 from cloudwalk\_hr\_000

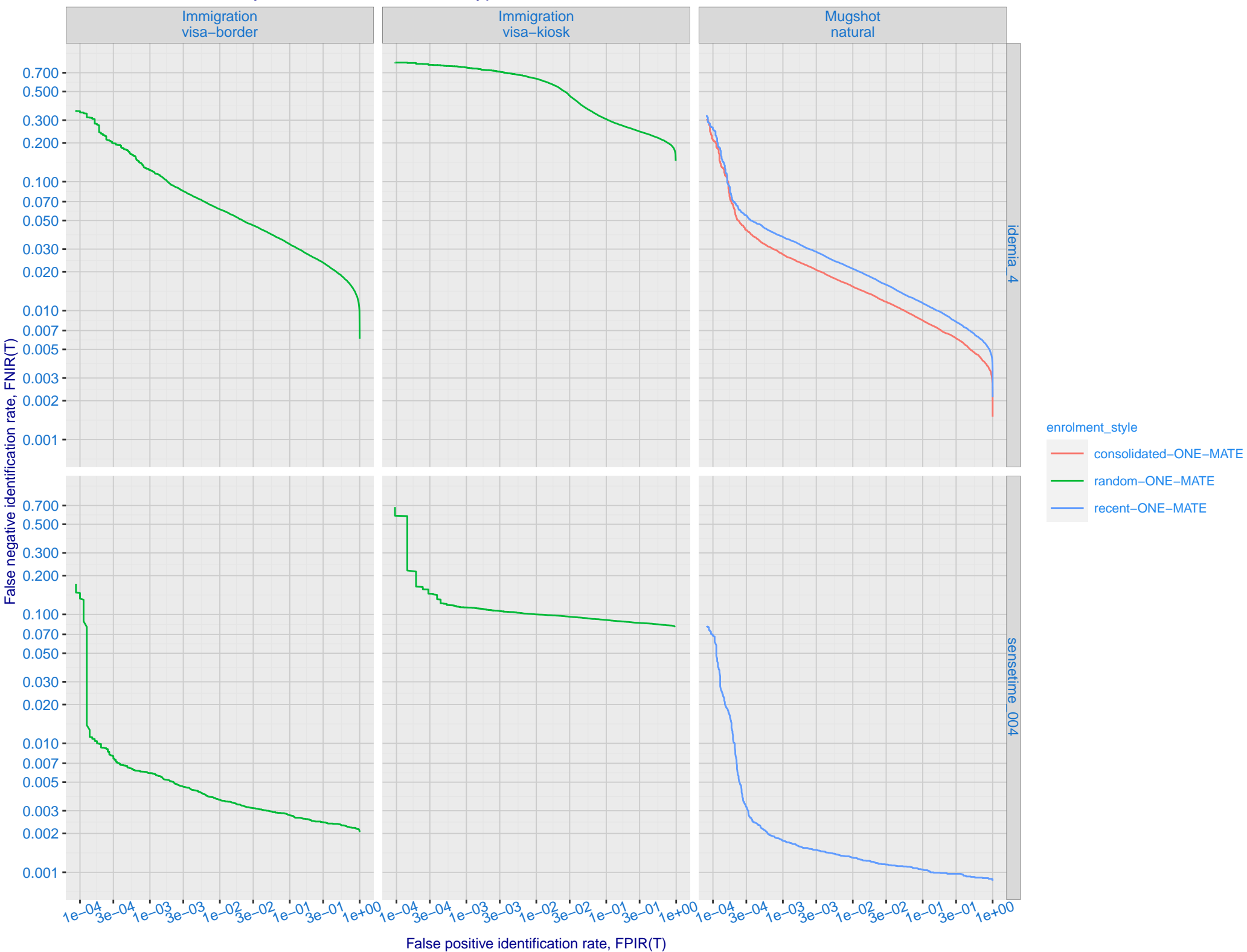
B: Mugshot natural images, identification mode: FNIR(N, L+1, T) vs. most accurate (sensetime\_004)



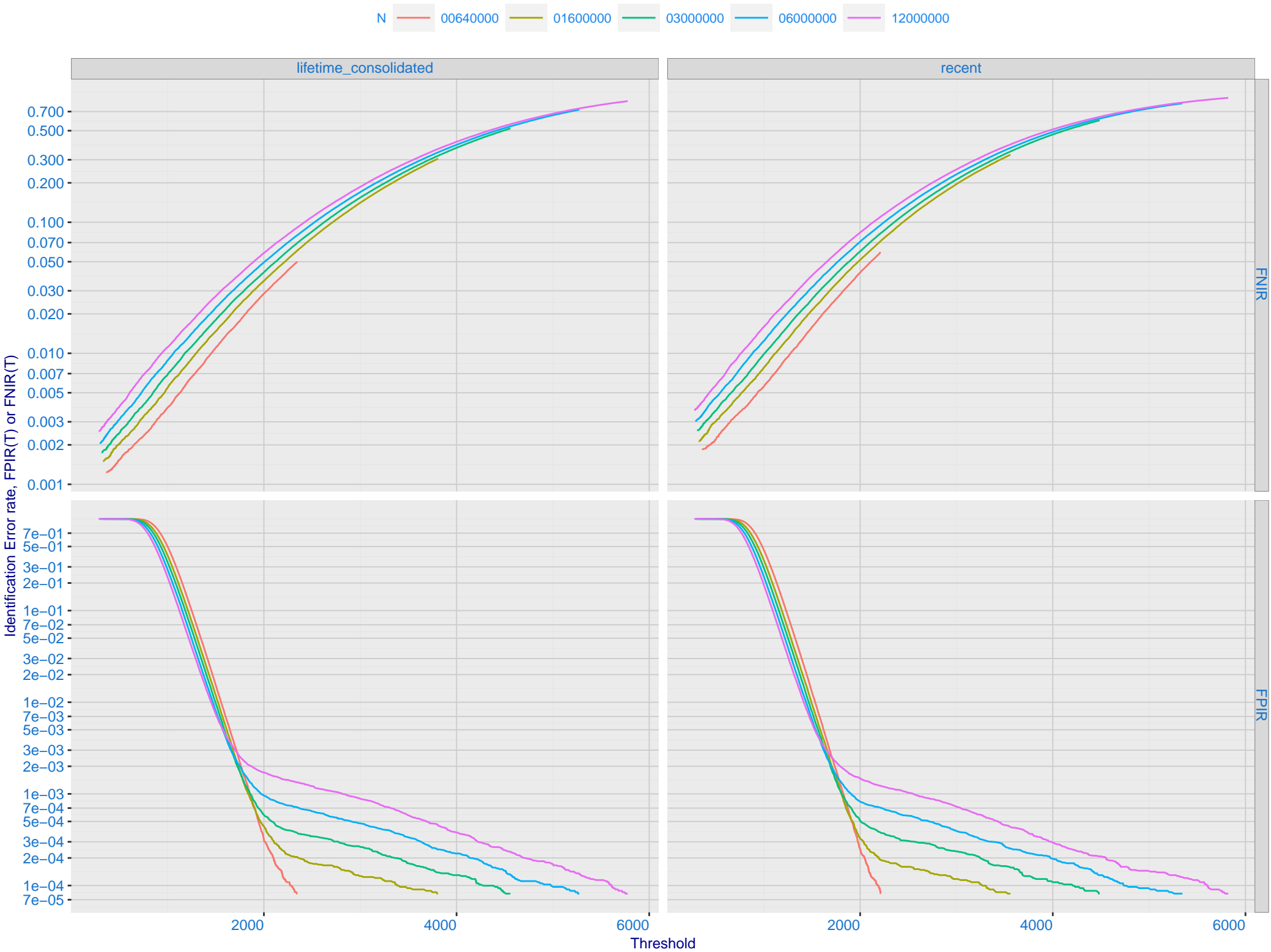
C: Evolution of accuracy for IDEMIA algorithms on three datasets 2018 – present



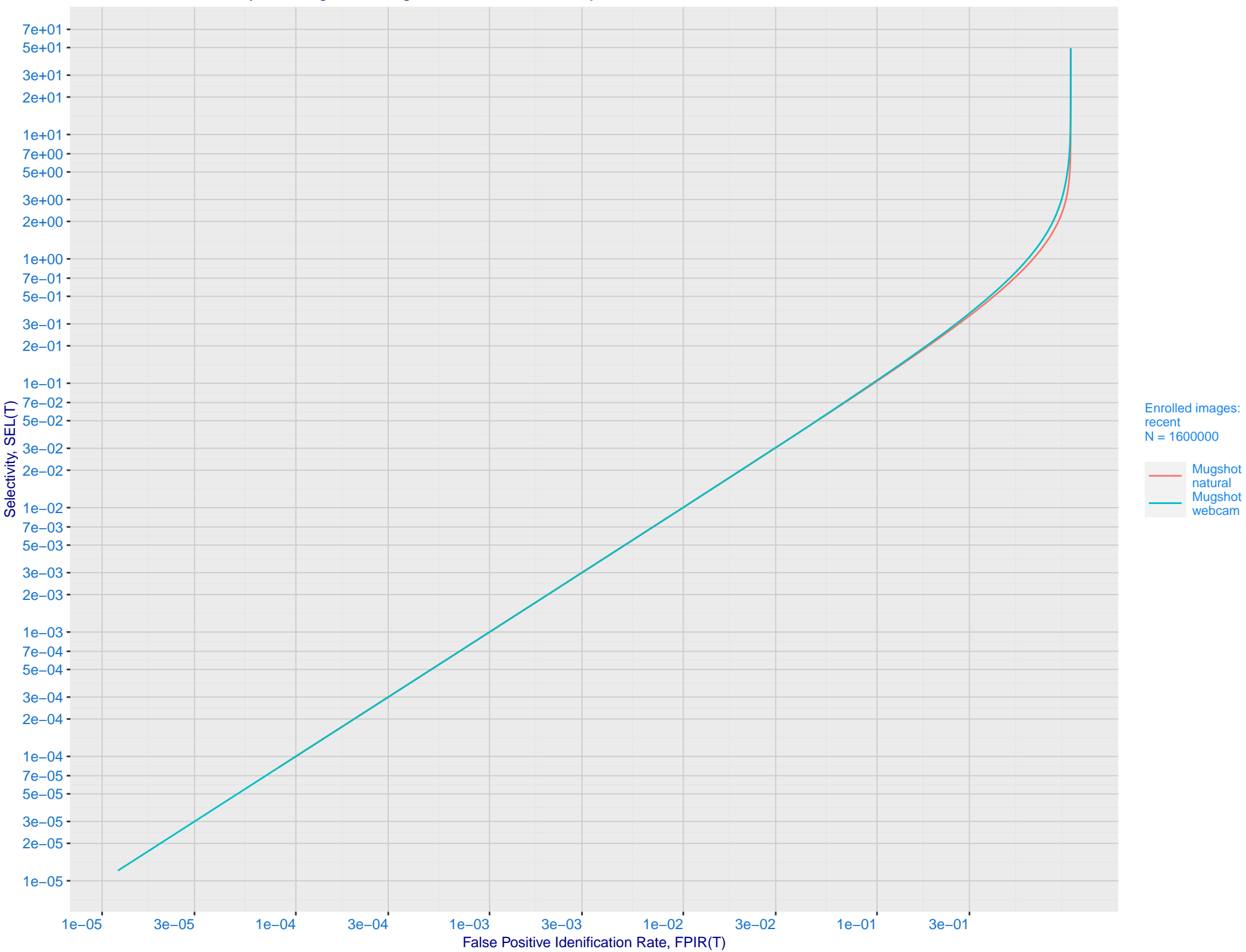
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals



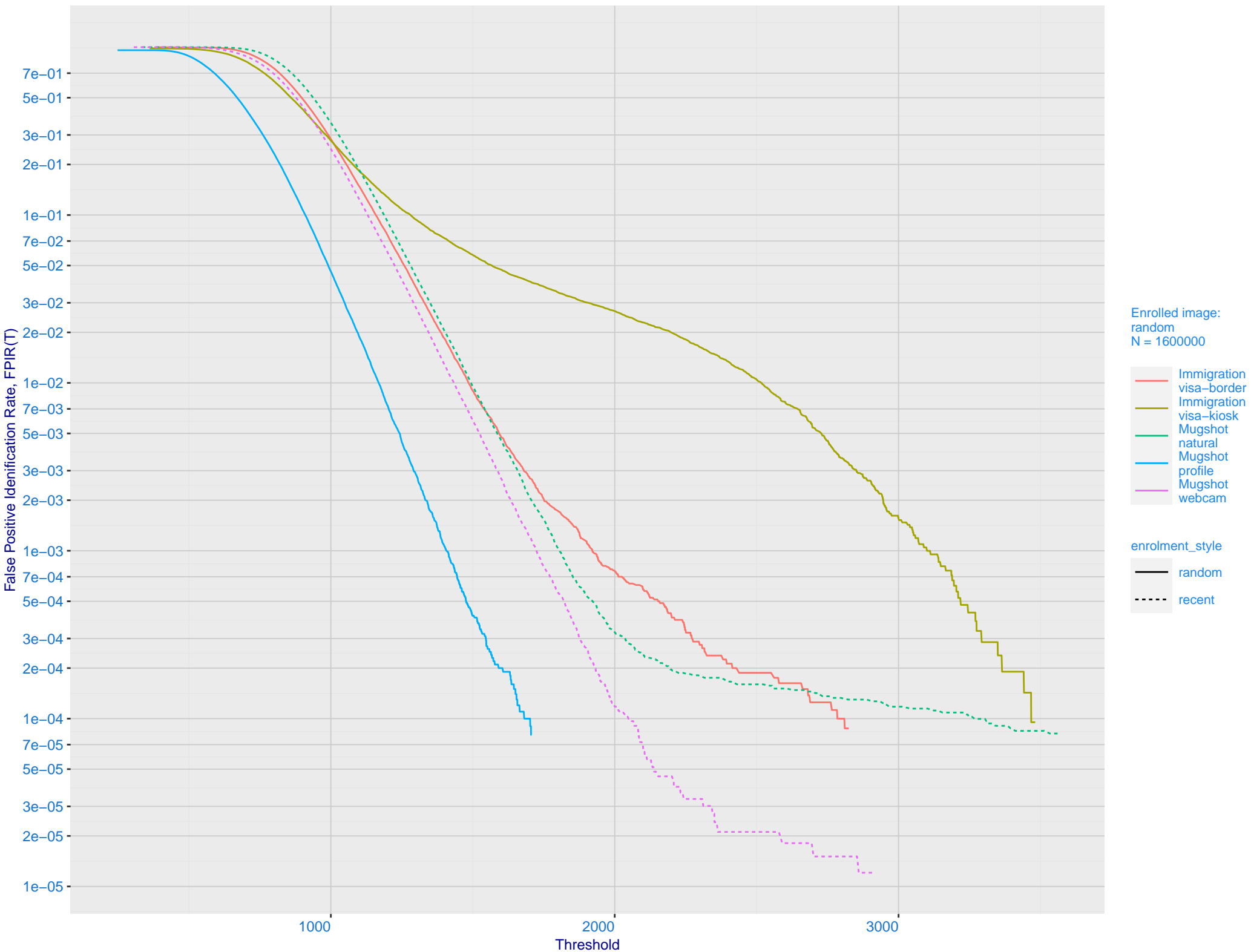
E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



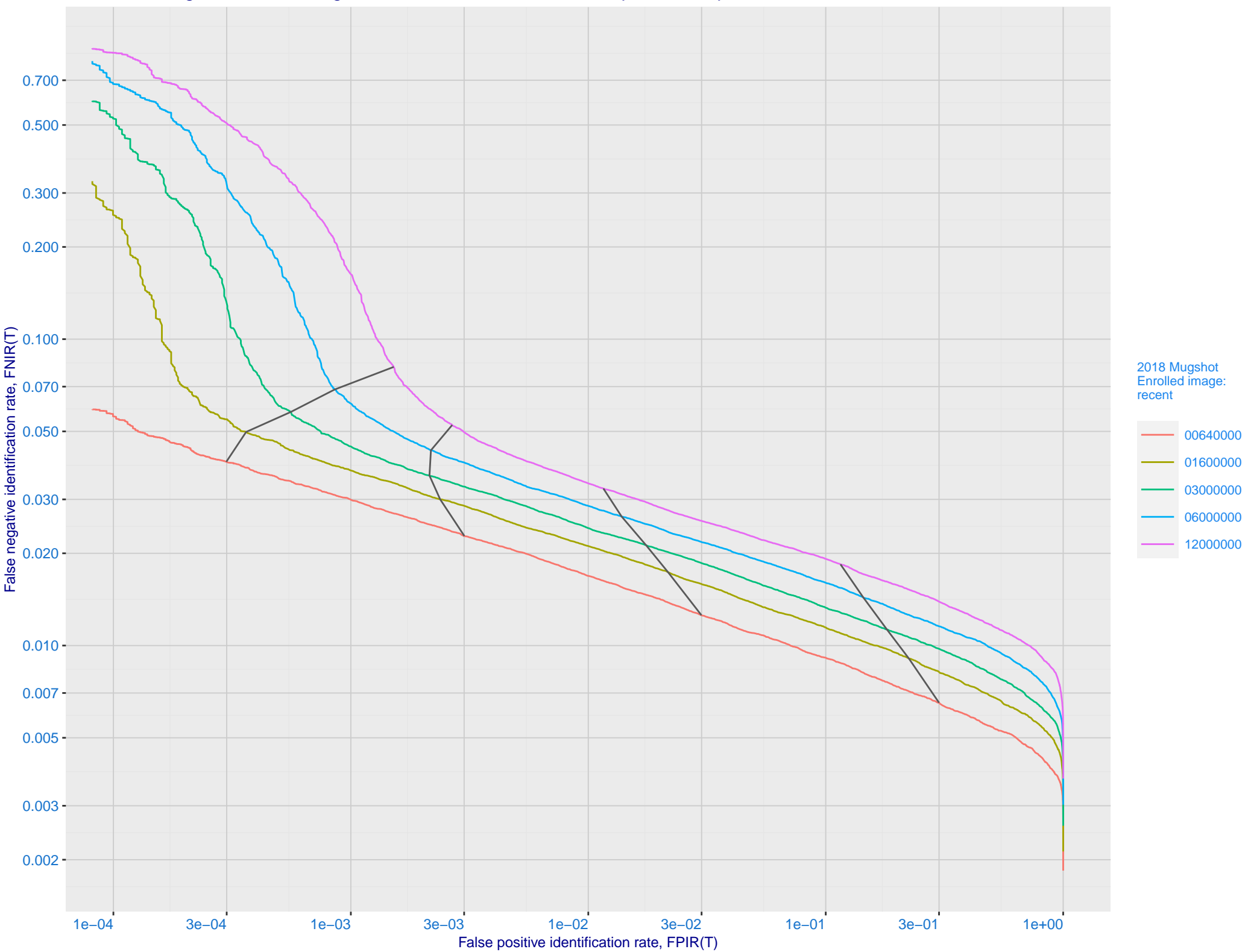
F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate



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

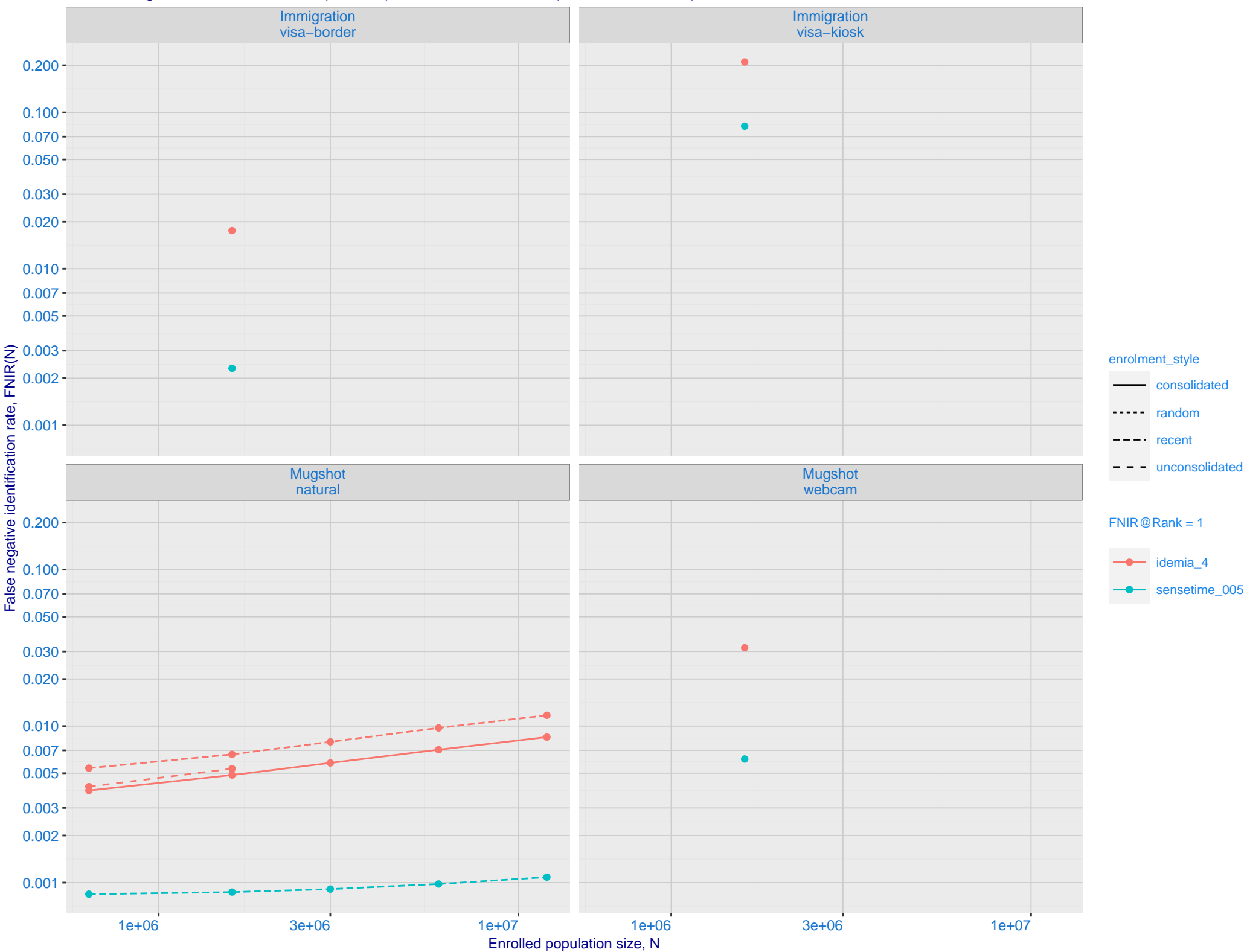


J: DET for Mugshot natural images and various N. Links connect points of equal threshold.

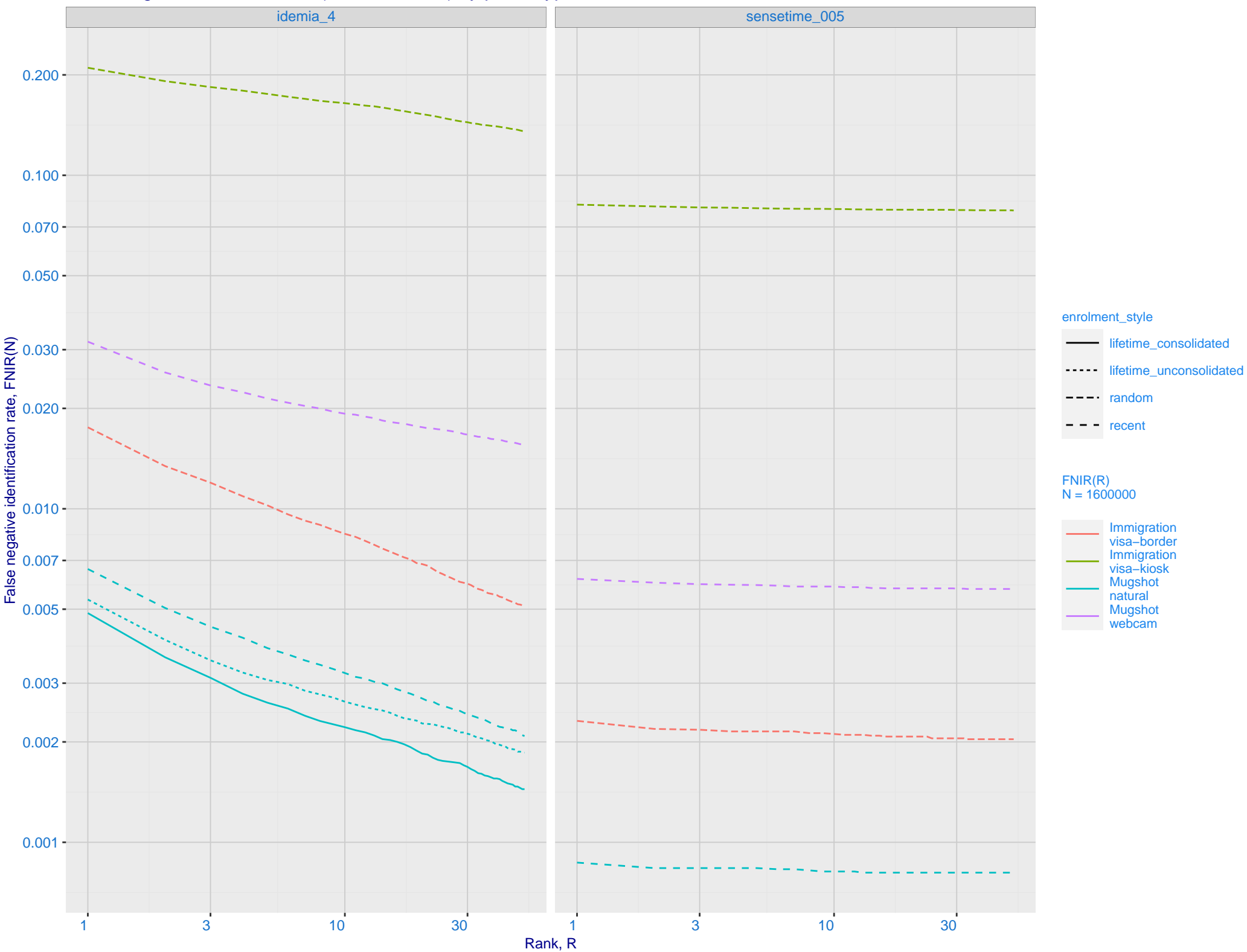




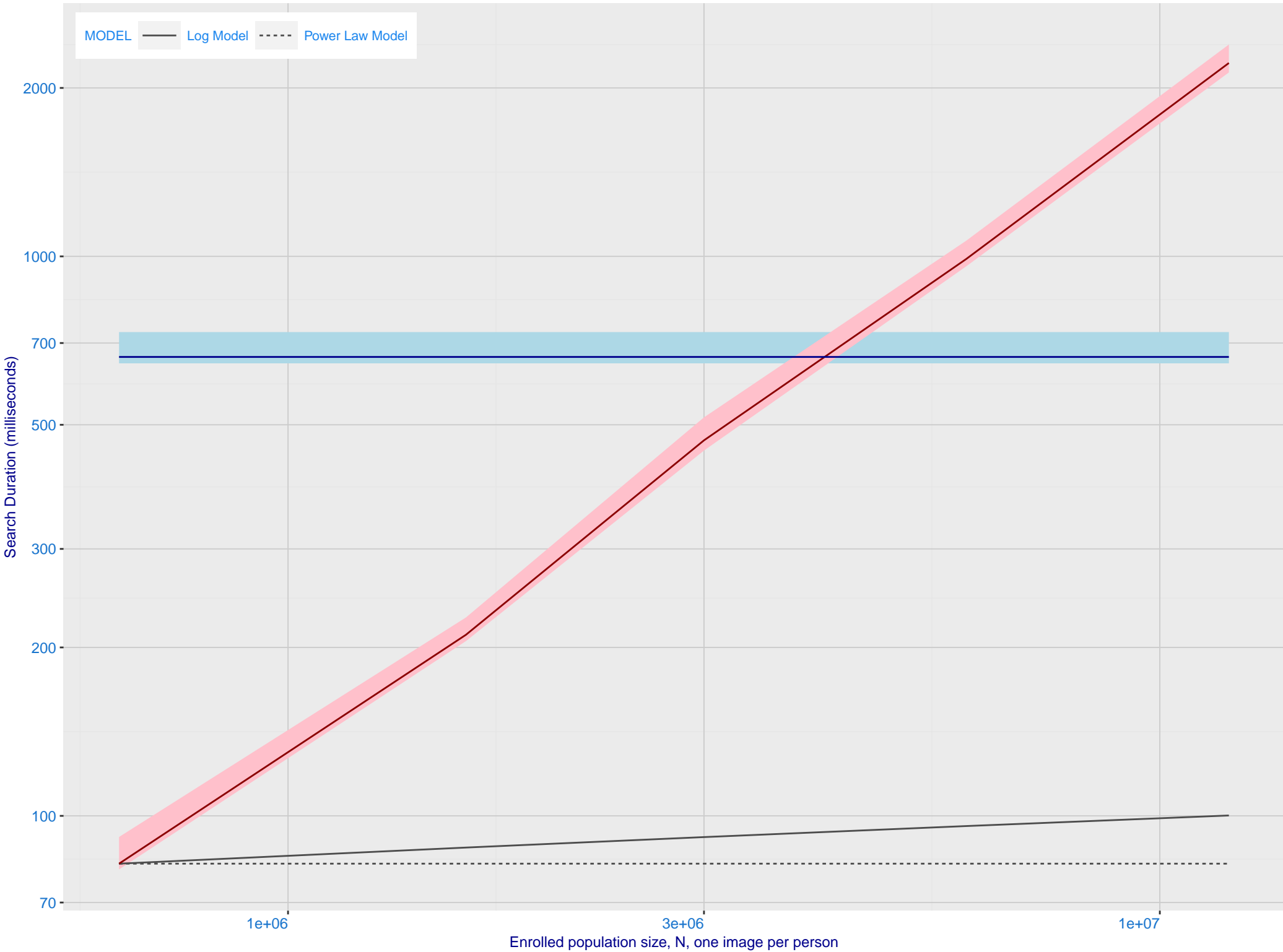
K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_005)



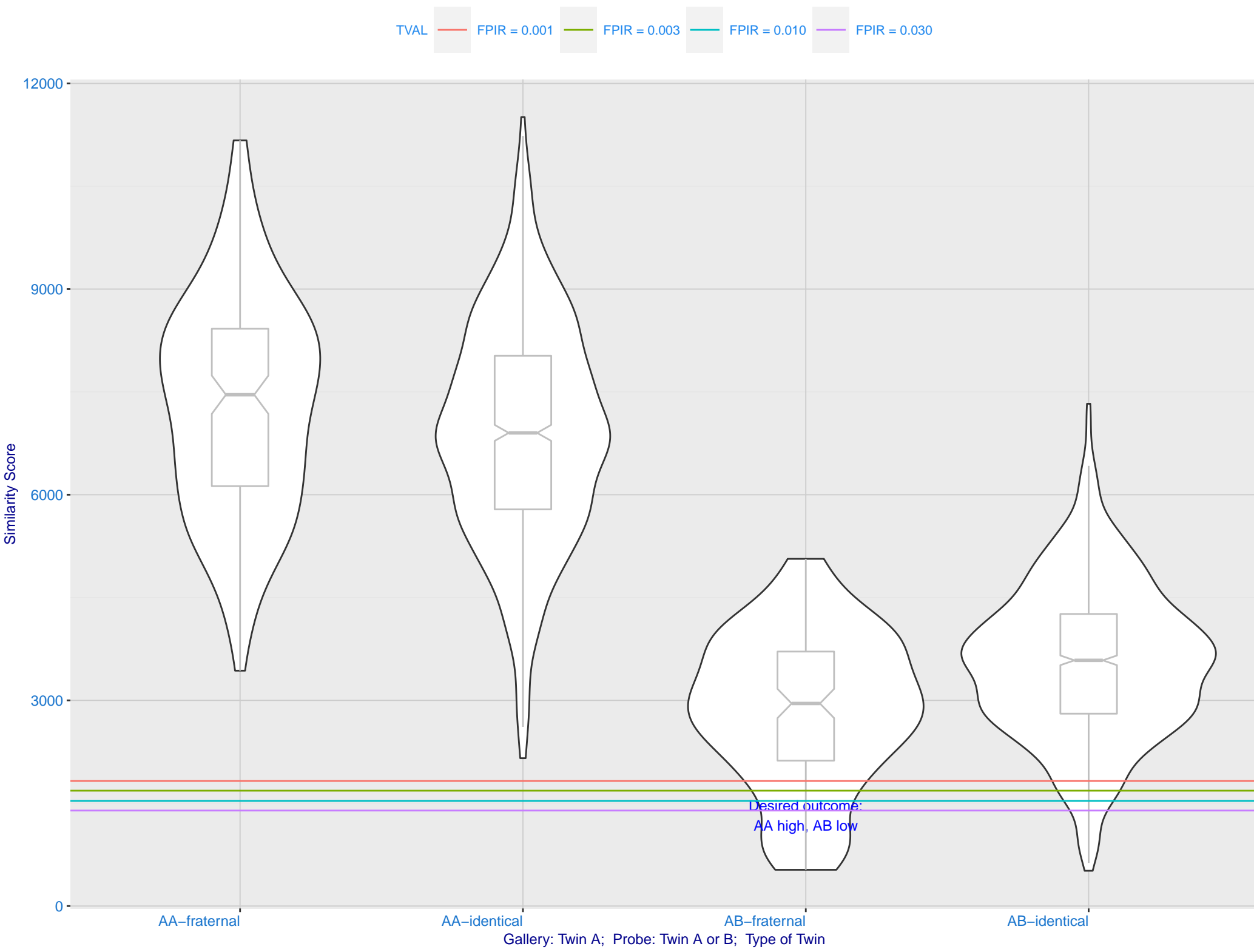
L: Investigational mode: FNIR(1600000, R, 0) by probe type



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

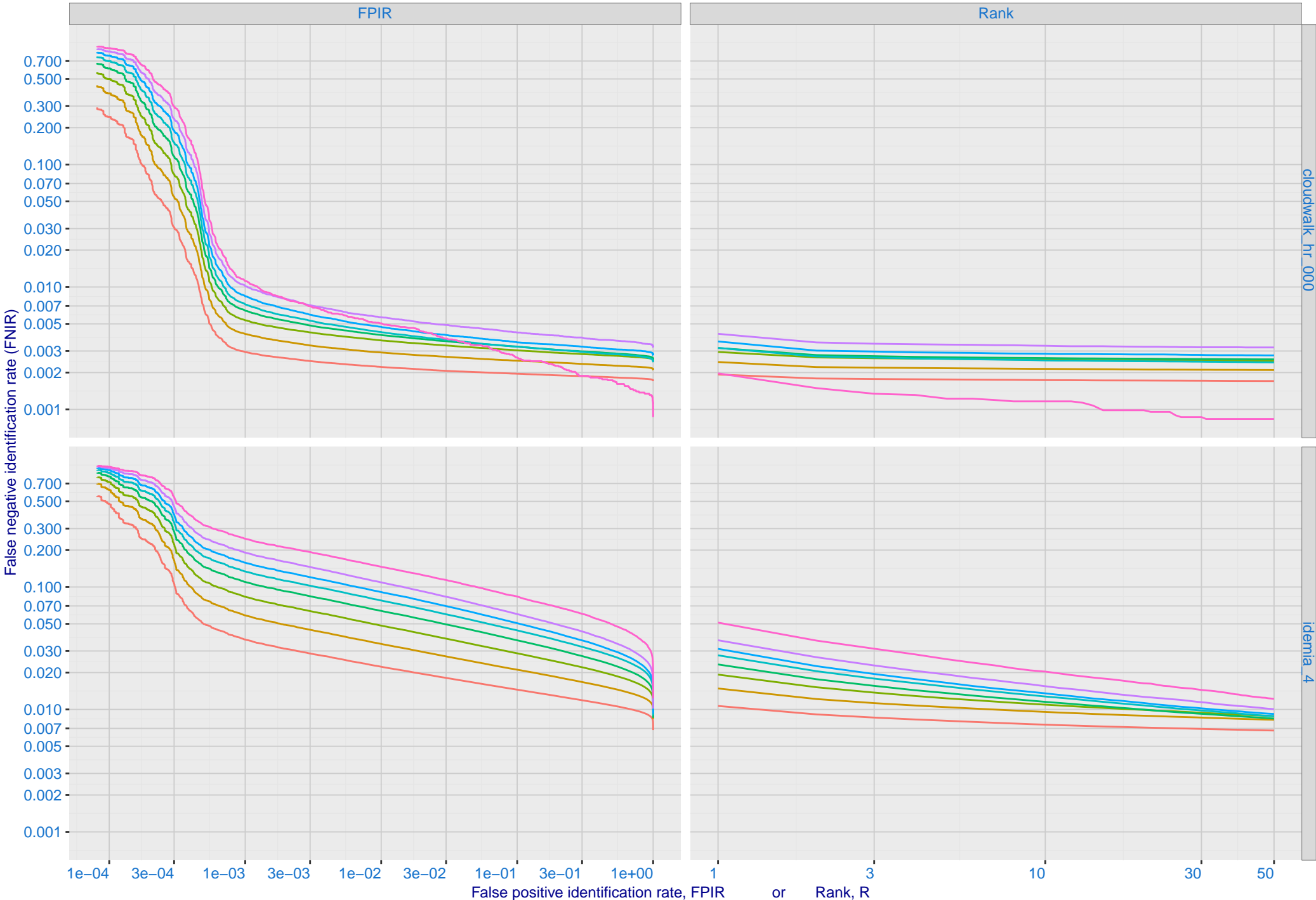


# N: Solo-Twin and Twin-Twin similarity scores



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

