

A: Datasheet

Algorithm: griale\_001

Developer: Griaule

Submission Date: 2022\_07\_26

Template size: 2052 bytes

Template time (2.5 percentile): 1097 msec

Template time (median): 1102 msec

Template time (97.5 percentile): 1116 msec

Investigation:

Mugshot webcam ranking 27 (out of 331) -- FNIR(1600000, 0, 1) = 0.0079 vs. lowest 0.0055 from sensetime\_008

Mugshot profile ranking 54 (out of 300) -- FNIR(1600000, 0, 1) = 0.1325 vs. lowest 0.0521 from sensetime\_007

Immigration visa-border ranking 7 (out of 258) -- FNIR(1600000, 0, 1) = 0.0010 vs. lowest 0.0006 from cloudwalk\_mt\_001

Immigration visa-kiosk ranking 24 (out of 203) -- FNIR(1600000, 0, 1) = 0.0588 vs. lowest 0.0395 from cloudwalk\_mt\_001

Identification:

Frontal mugshot ranking 34 (out of 369) -- FNIR(1600000, T, L+1) = 0.0047, FPIR=0.001000 vs. lowest 0.0013 from sensetime\_008

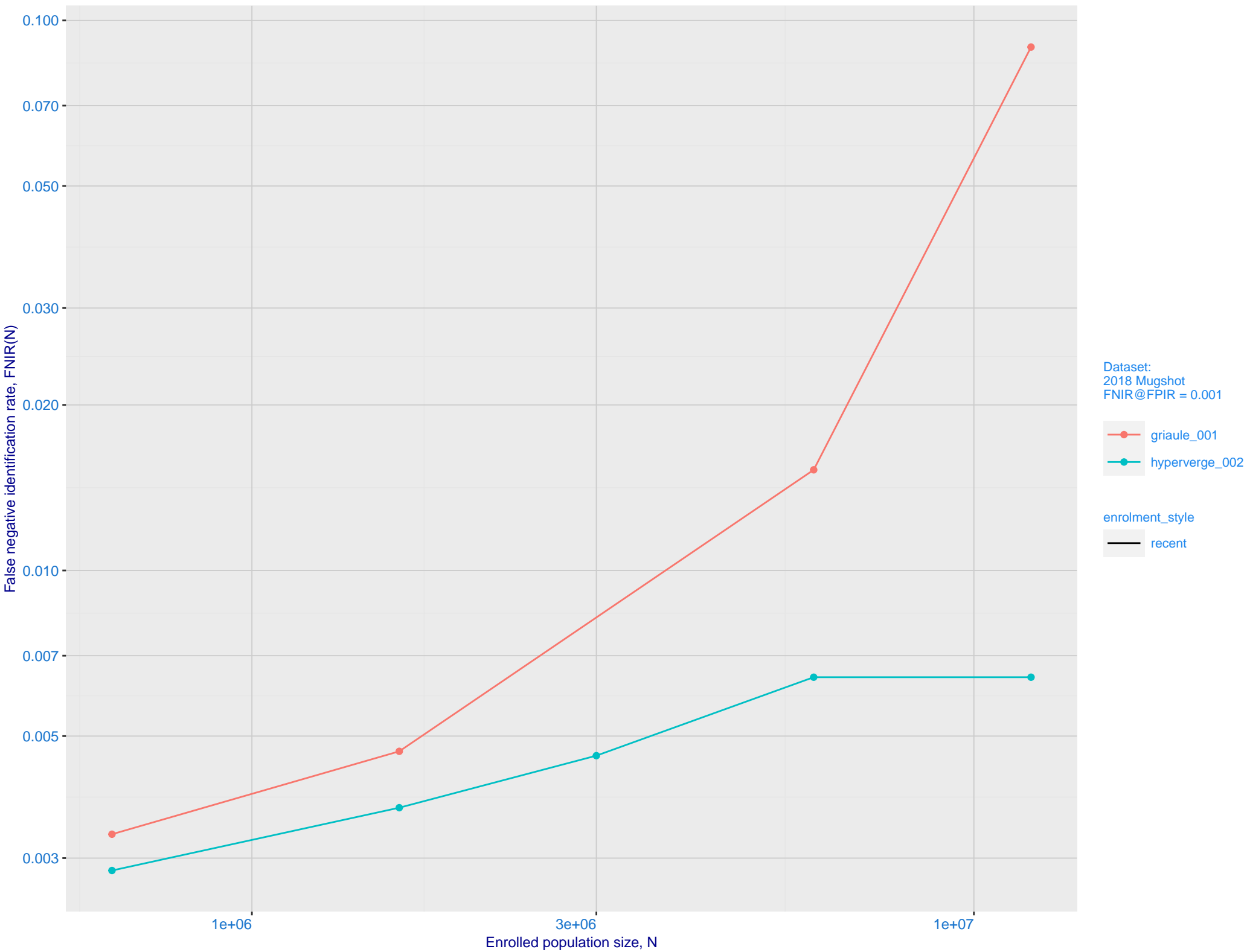
Mugshot webcam ranking 41 (out of 329) -- FNIR(1600000, T, L+1) = 0.0277, FPIR=0.001000 vs. lowest 0.0090 from sensetime\_008

Mugshot profile ranking 69 (out of 299) -- FNIR(1600000, T, L+1) = 0.8646, FPIR=0.001000 vs. lowest 0.0698 from cloudwalk\_mt\_001

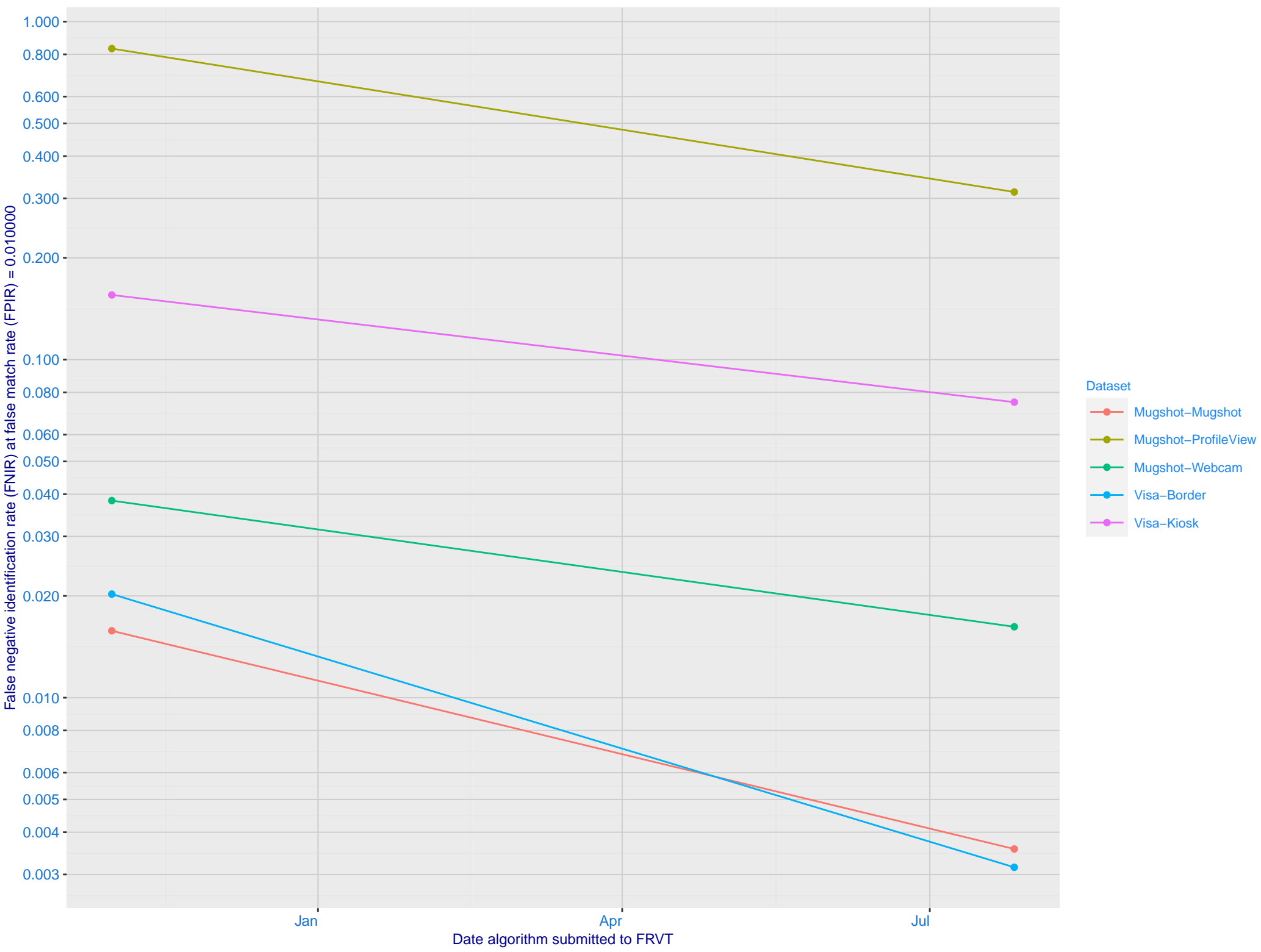
Immigration visa-border ranking 24 (out of 257) -- FNIR(1600000, T, L+1) = 0.0069, FPIR=0.001000 vs. lowest 0.0013 from cloudwalk\_mt\_001

Immigration visa-kiosk ranking 21 (out of 203) -- FNIR(1600000, T, L+1) = 0.0948, FPIR=0.001000 vs. lowest 0.0532 from cloudwalk\_mt\_001

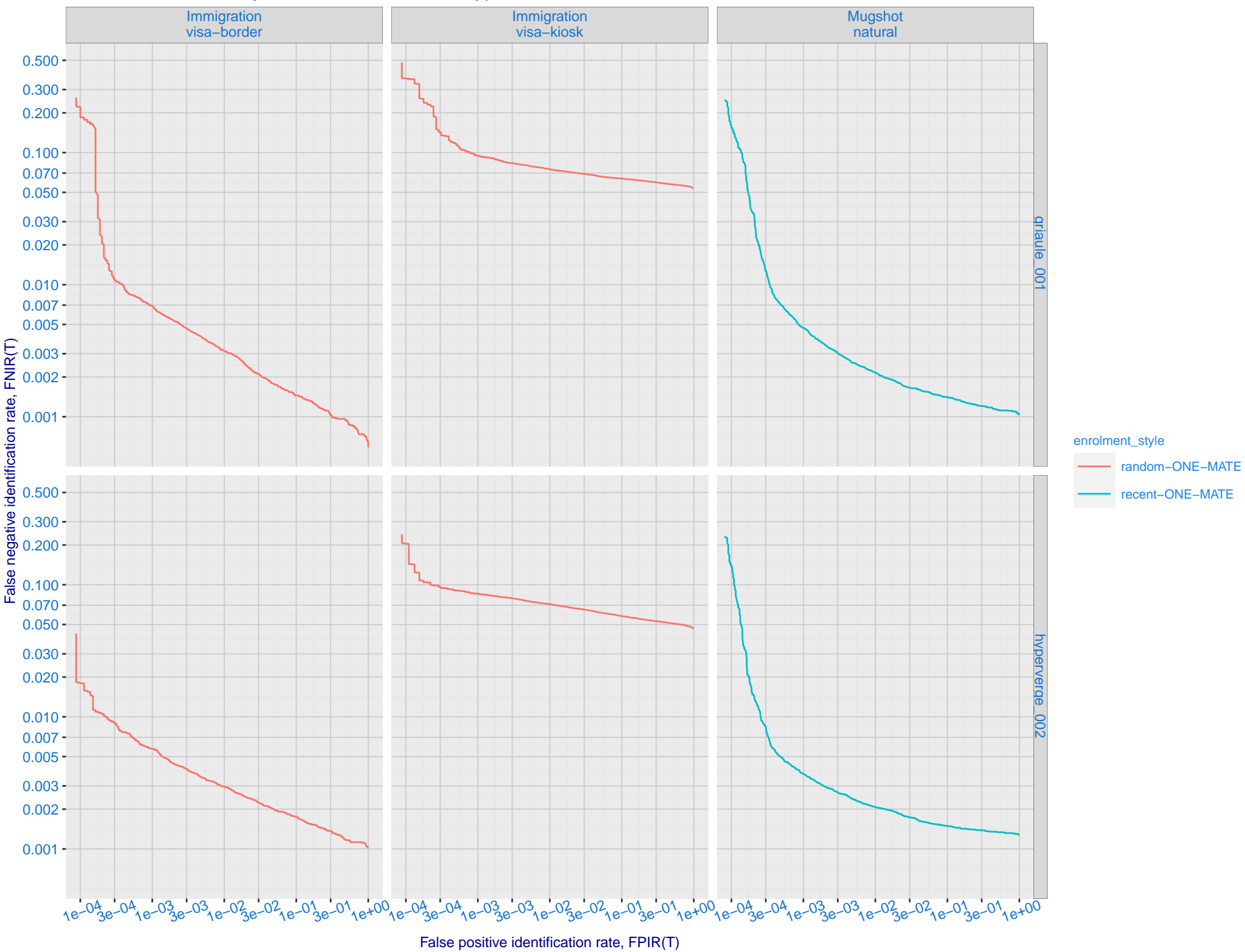
B: Mugshot natural images, identification mode: FNIR(N, L+1, T) vs. most accurate (hyperverge\_002)



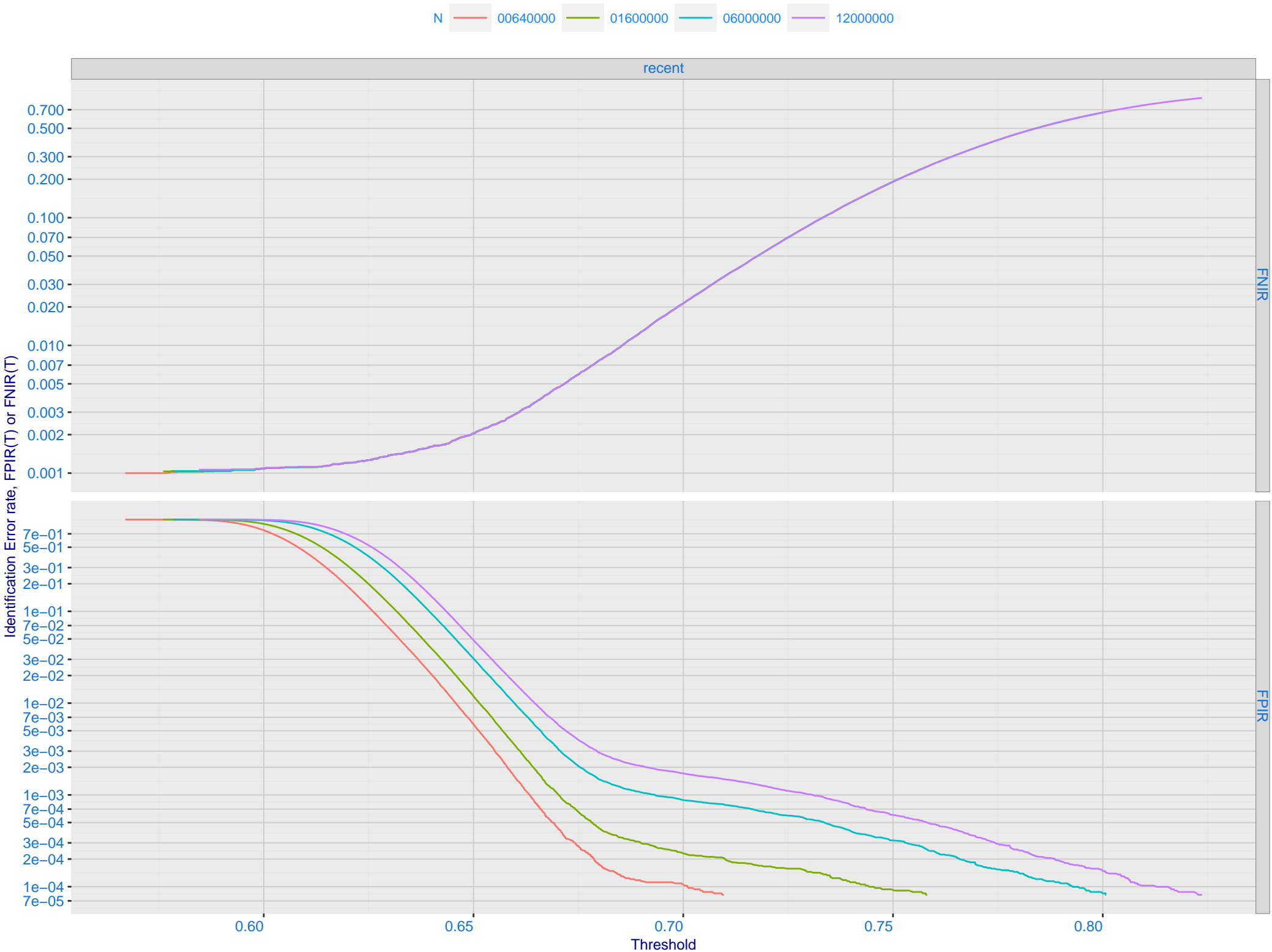
C: Evolution of accuracy for GRIAULE algorithms on three datasets 2018 – present



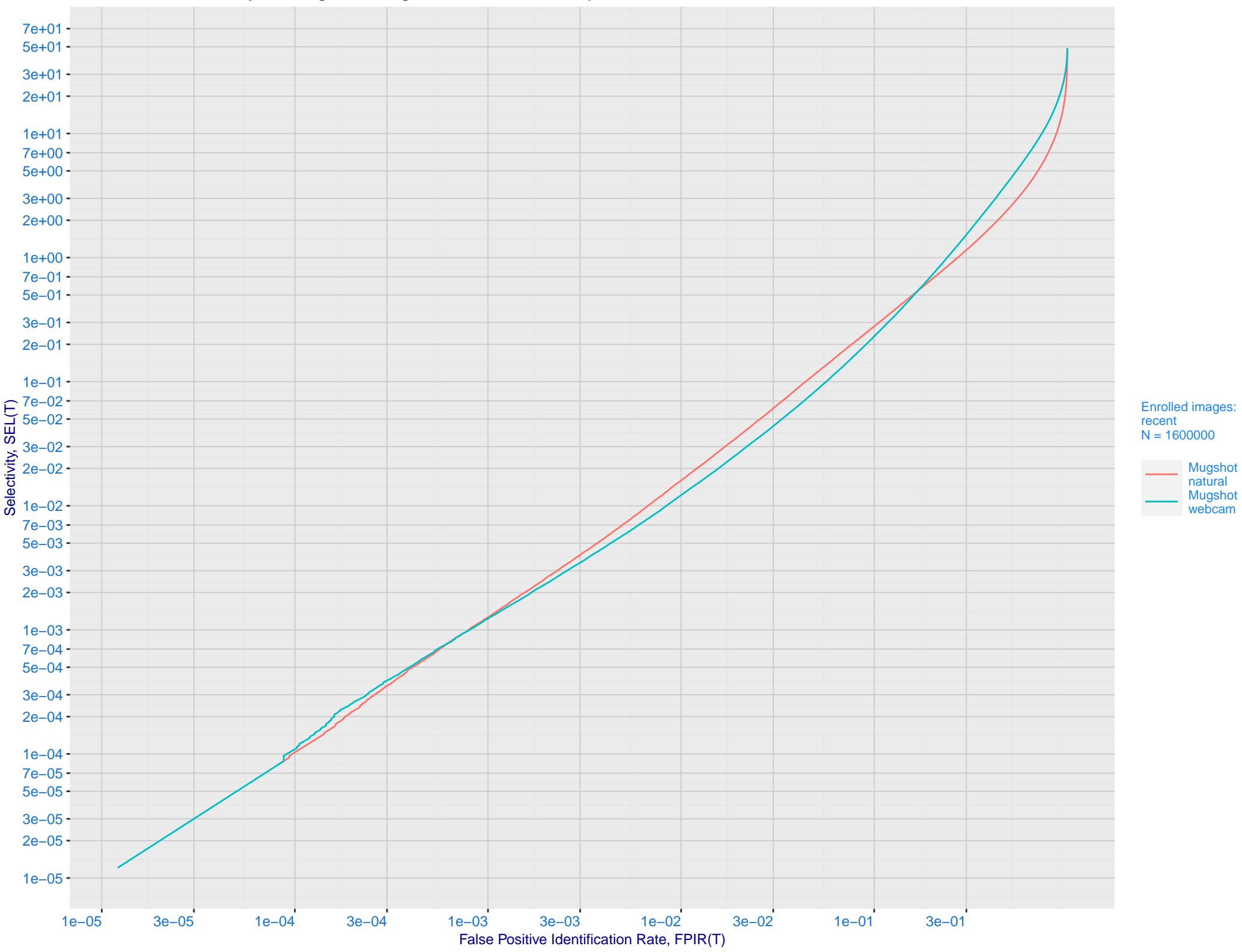
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals



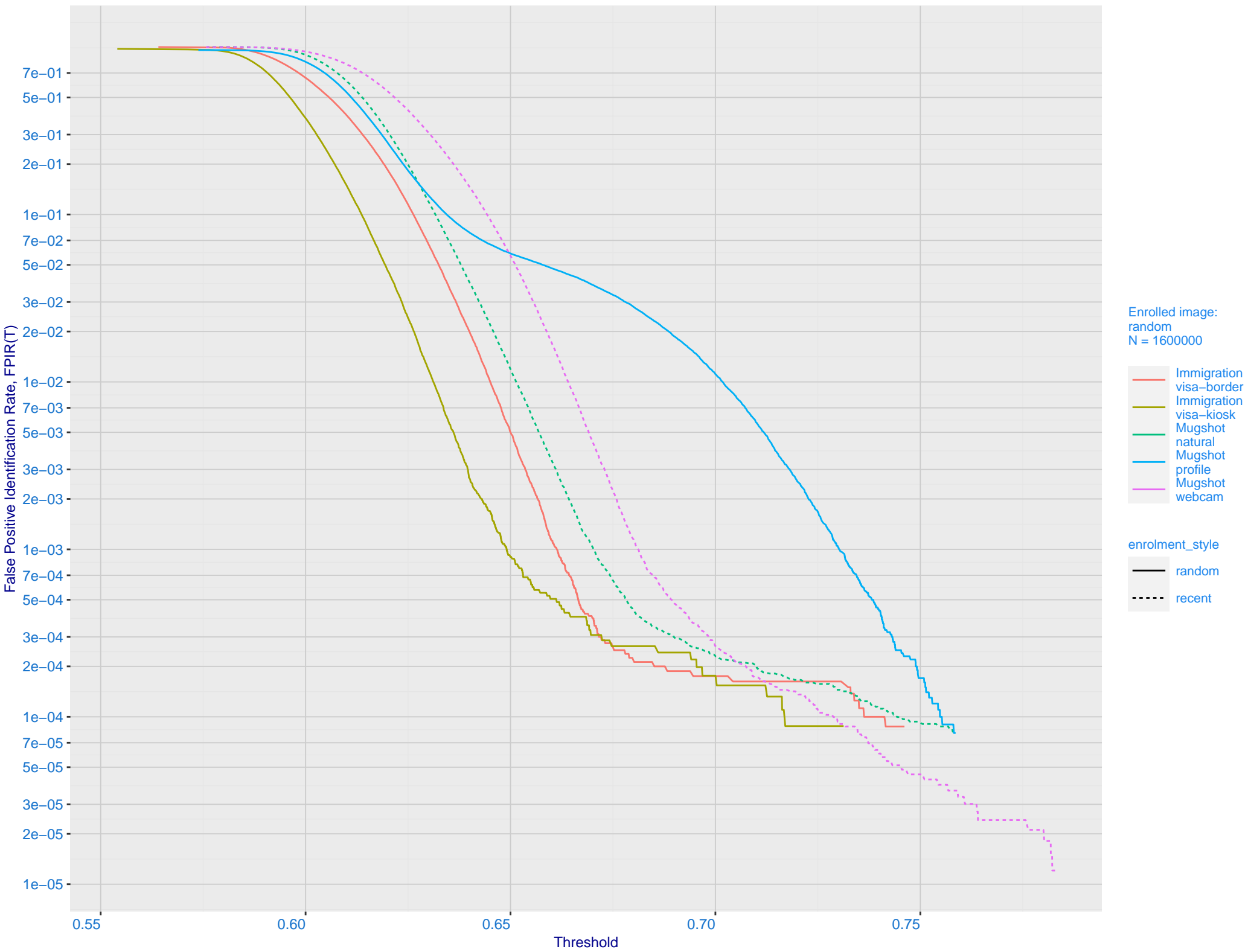
E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



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

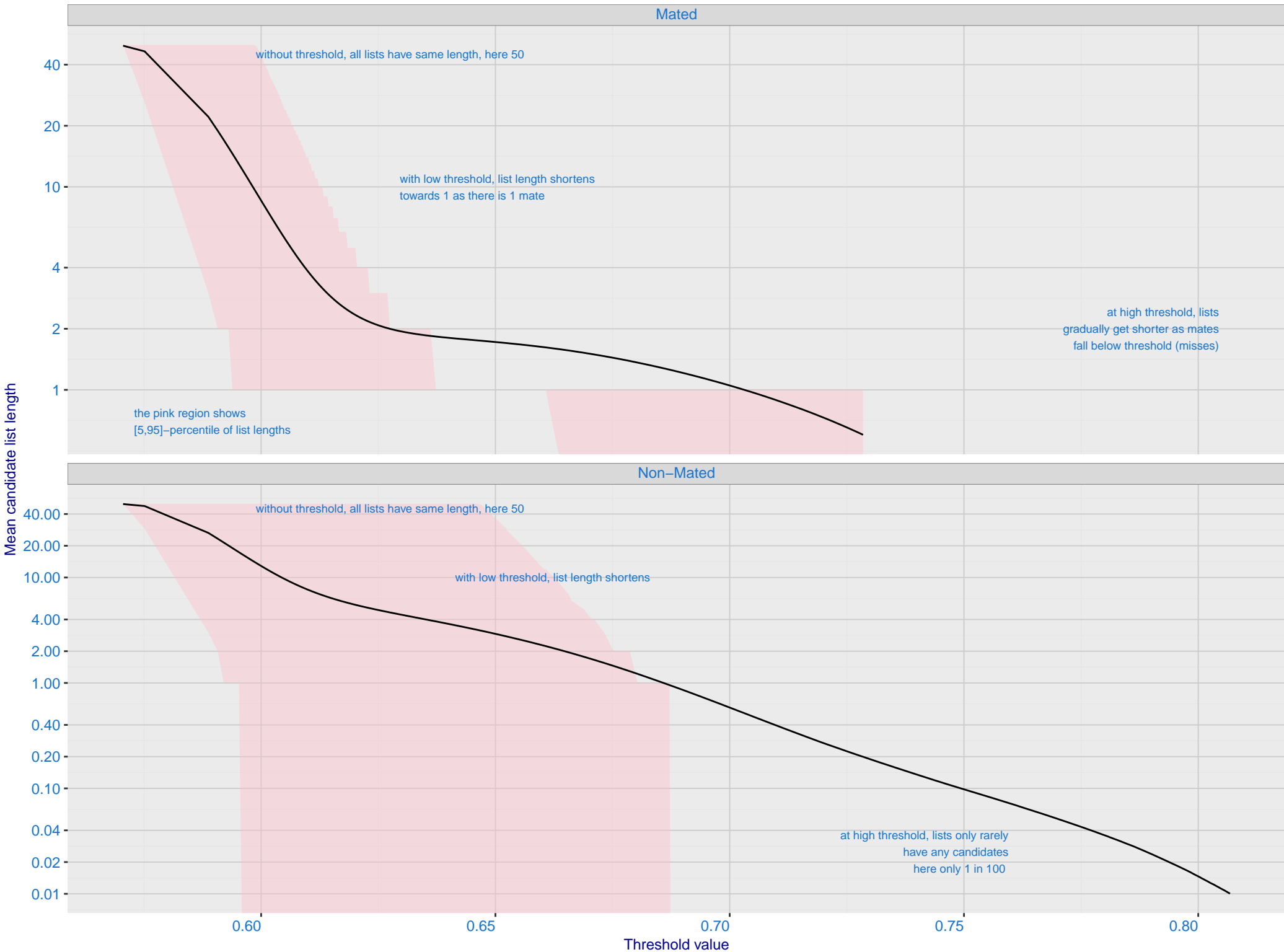


G: FPIR dependence on T by probe type for N = 1600000 subjects



# H: Reduced length candidate lists for human review

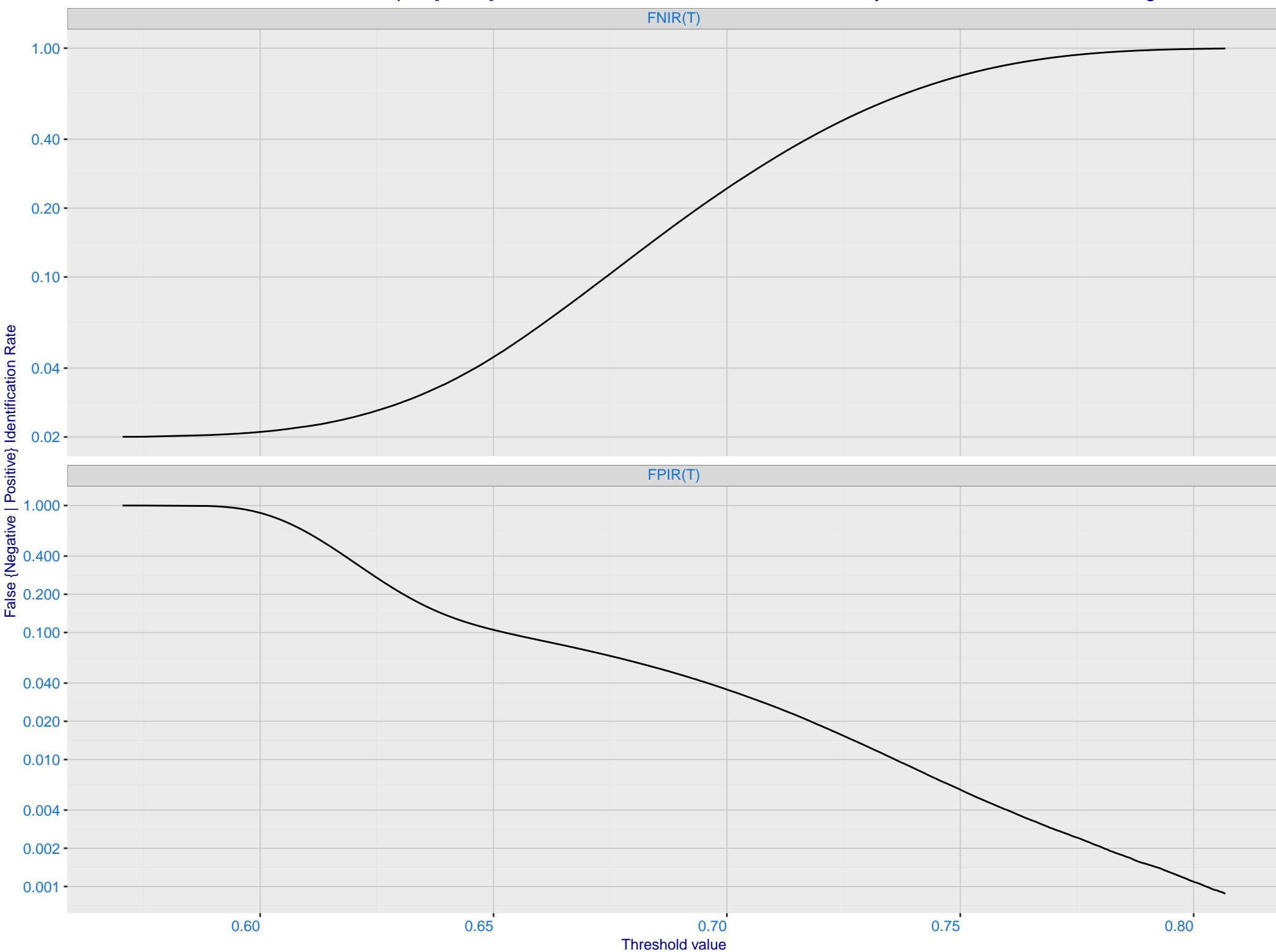
Dataset is border–border with time–lapse [10,15] YRS with N = 1600000. Probes are 10–15 years later than enrollment image



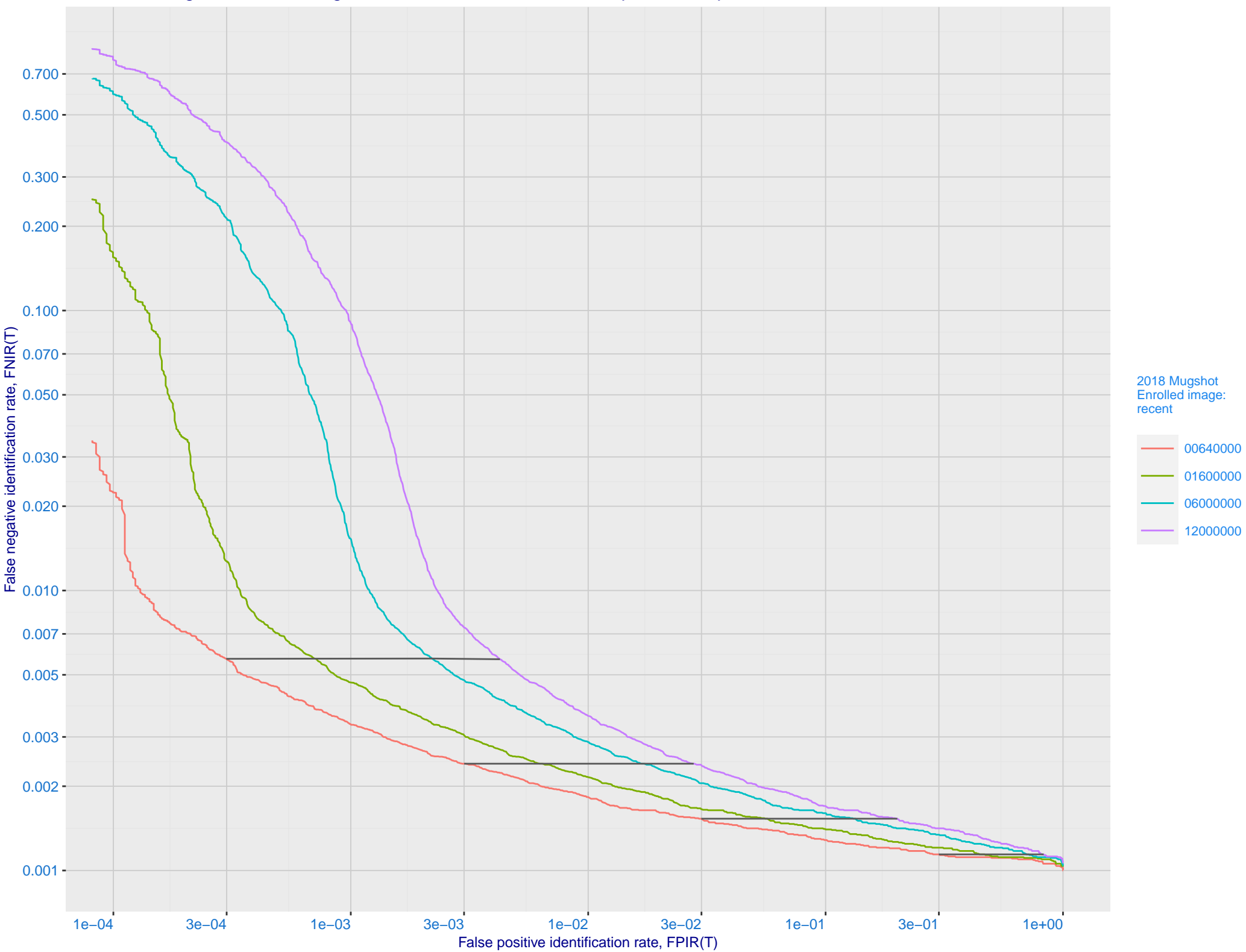


# I: FNIR and FPIR dependence on threshold

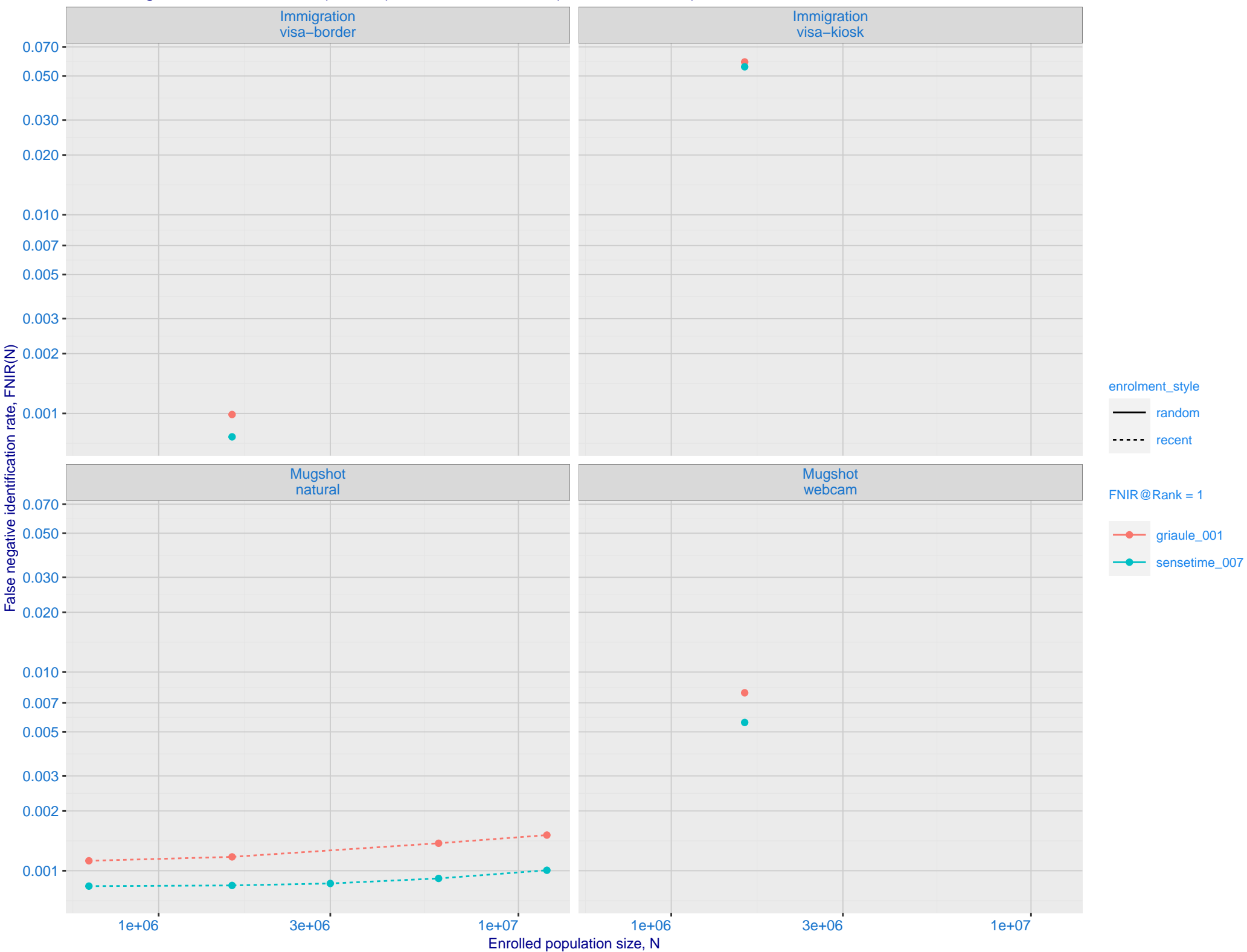
Dataset is border–border with time–lapse [10,15] YRS with N = 1600000. Probes are 10–15 years later than enrollment image



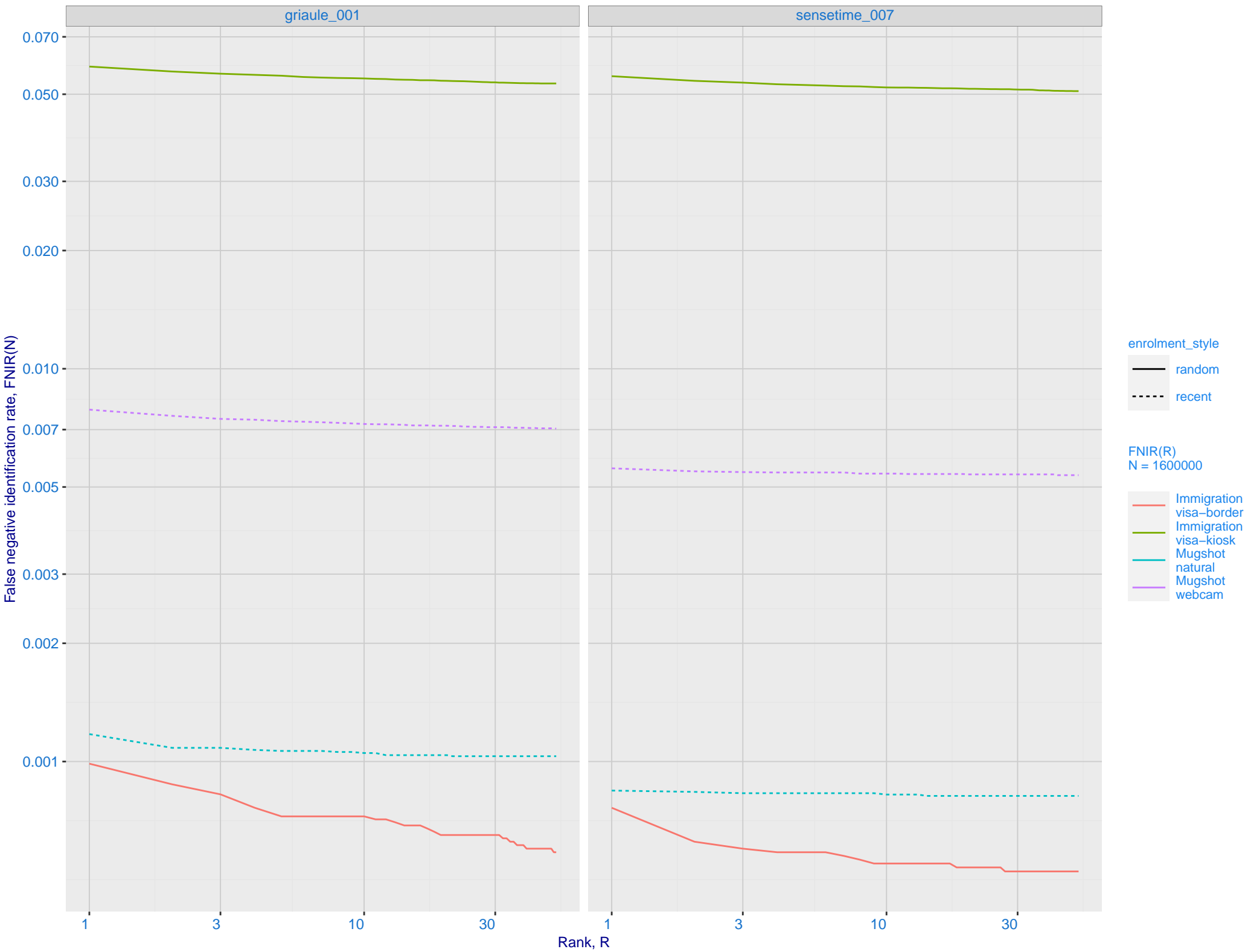
J: DET for Mugshot natural images and various N. Links connect points of equal threshold.



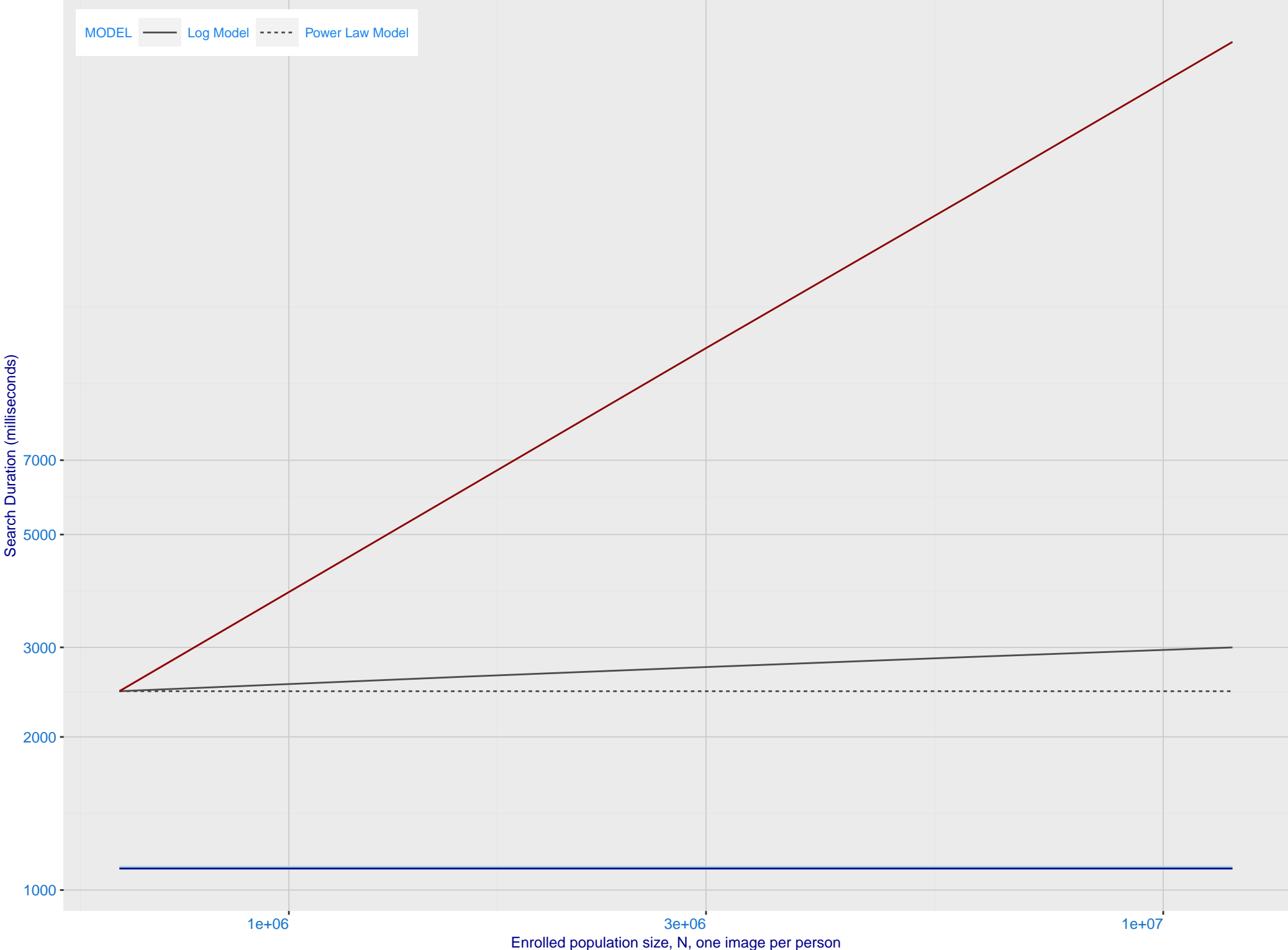
K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_007)



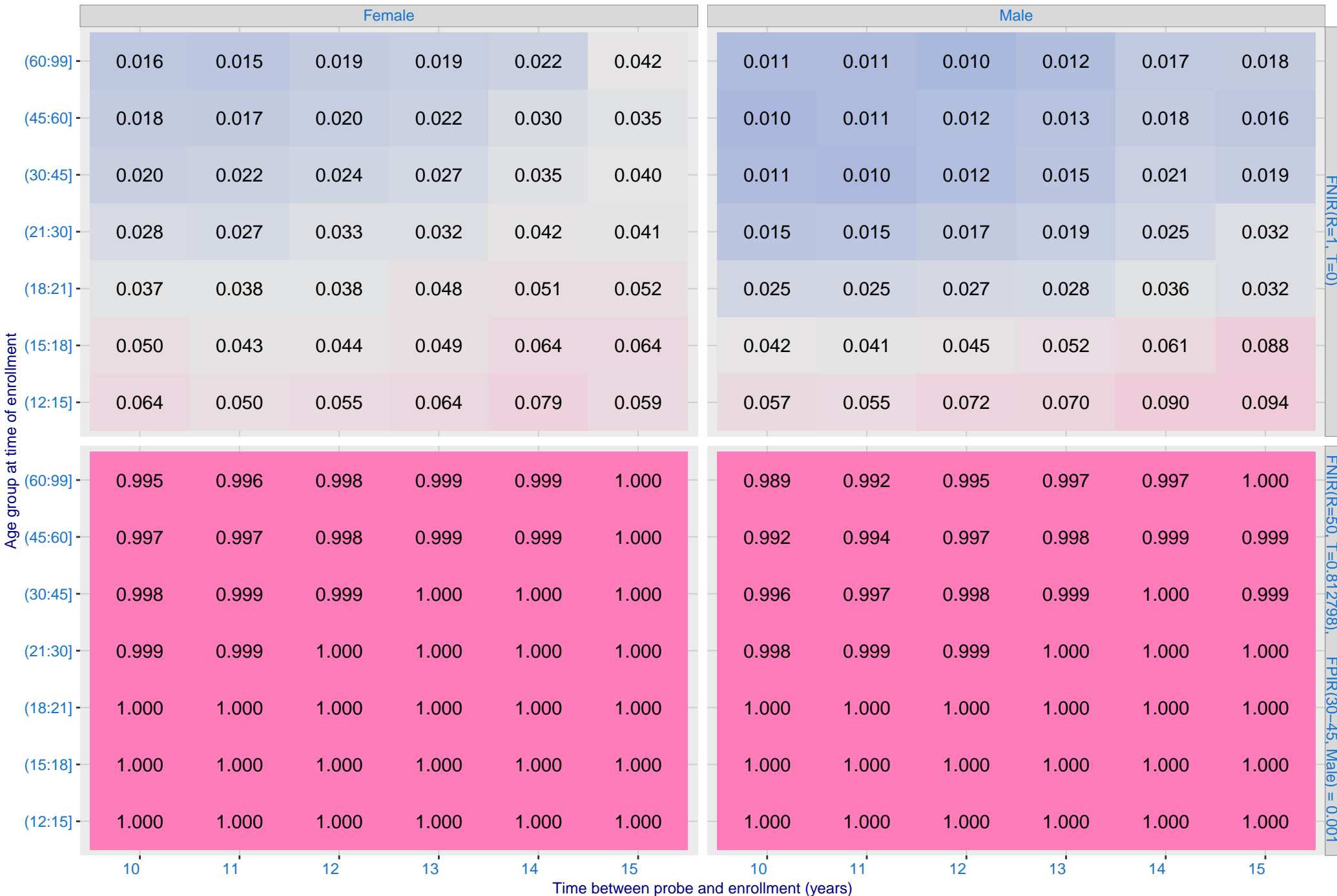
L: Investigational mode: FNIR(1600000, R, 0) by probe type



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.



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.

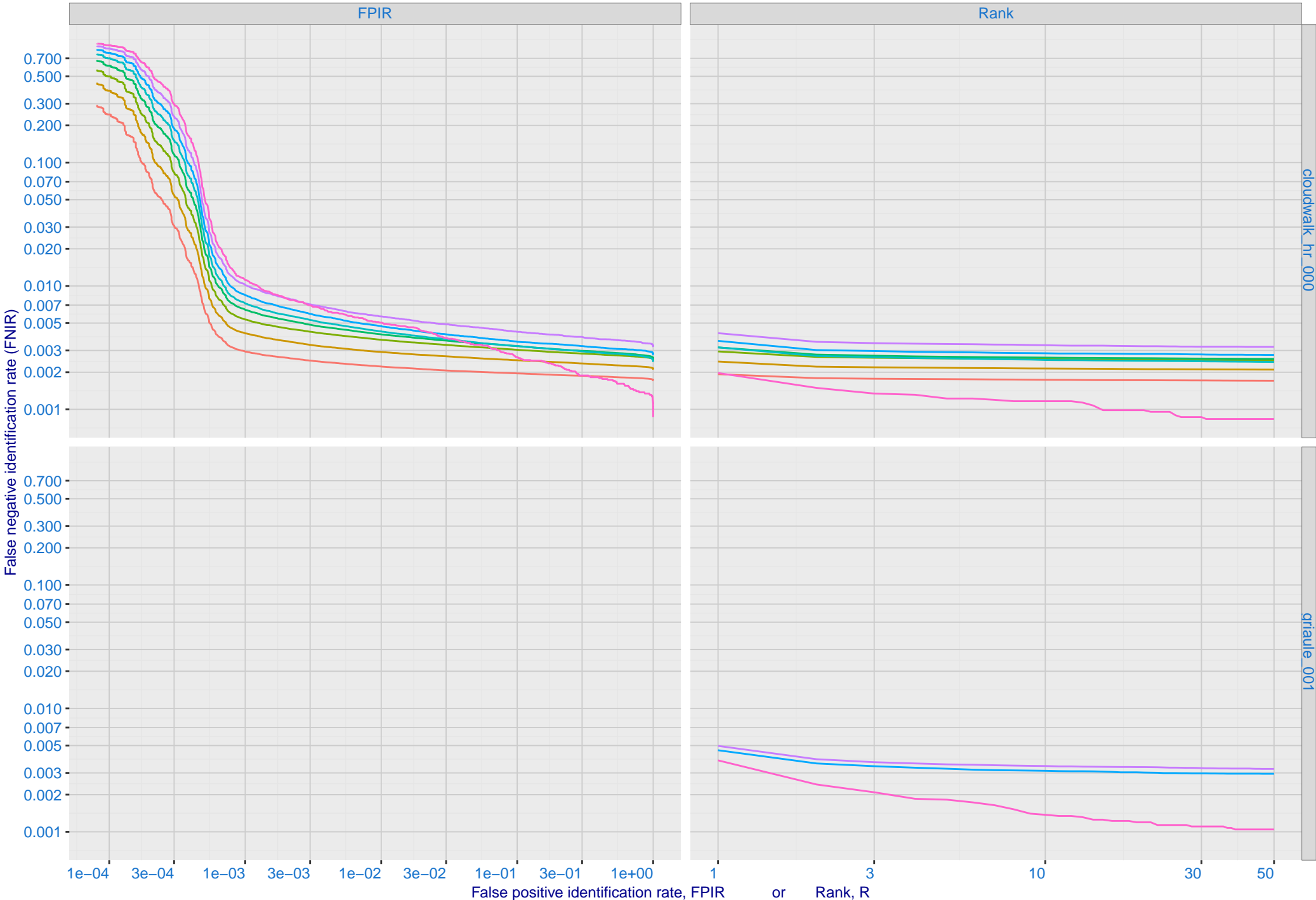
Algorithm: griaule\_001, Dataset: Border-Crossing Ageing  
Threshold: 0.812798 set to achieve FPIR(30–45, Male) = 0.001

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

