

A: Datasheet

Algorithm: realnetworks\_004

Developer: Realnetworks Inc

Submission Date: 2019\_10\_17

Template size: 1848 bytes

Template time (2.5 percentile): 168 msec

Template time (median): 172 msec

Template time (97.5 percentile): 254 msec

Investigation:

Frontal mugshot ranking 166 (out of 259) -- FNIR(1600000, 0, 1) = 0.0236 vs. lowest 0.0009 from sensetime\_005

Mugshot webcam ranking 148 (out of 221) -- FNIR(1600000, 0, 1) = 0.0593 vs. lowest 0.0062 from sensetime\_005

Mugshot profile ranking 89 (out of 190) -- FNIR(1600000, 0, 1) = 0.7966 vs. lowest 0.0591 from sensetime\_005

Immigration visa-border ranking 77 (out of 142) -- FNIR(1600000, 0, 1) = 0.0310 vs. lowest 0.0014 from visionlabs\_009

Immigration visa-kiosk ranking 78 (out of 139) -- FNIR(1600000, 0, 1) = 0.2134 vs. lowest 0.0694 from cib\_000

Identification:

Frontal mugshot ranking 154 (out of 259) -- FNIR(1600000, T, L+1) = 0.1580, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

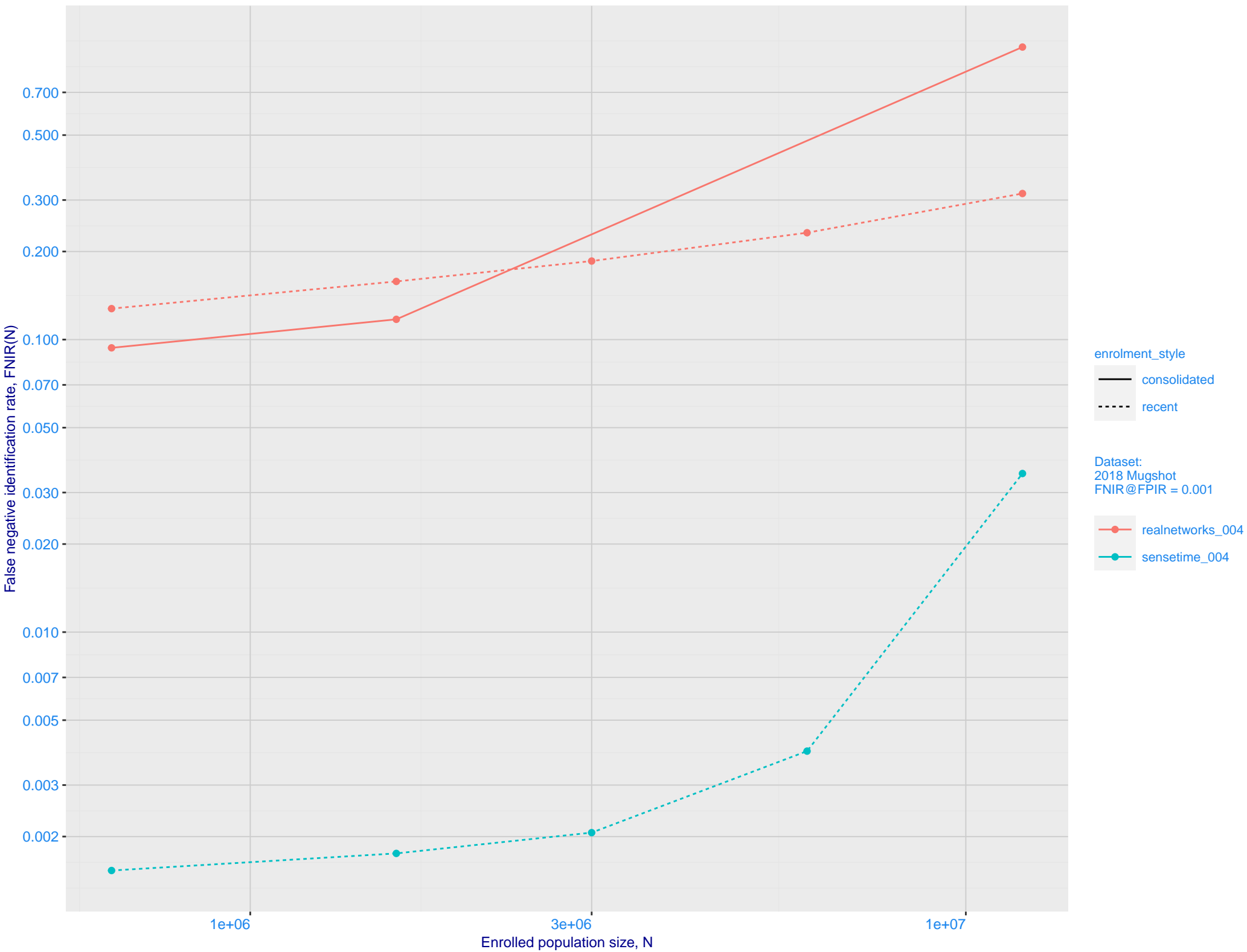
Mugshot webcam ranking 141 (out of 219) -- FNIR(1600000, T, L+1) = 0.2627, FPIR=0.001000 vs. lowest 0.0122 from sensetime\_003

Mugshot profile ranking 132 (out of 189) -- FNIR(1600000, T, L+1) = 0.9993, FPIR=0.001000 vs. lowest 0.1733 from sensetime\_005

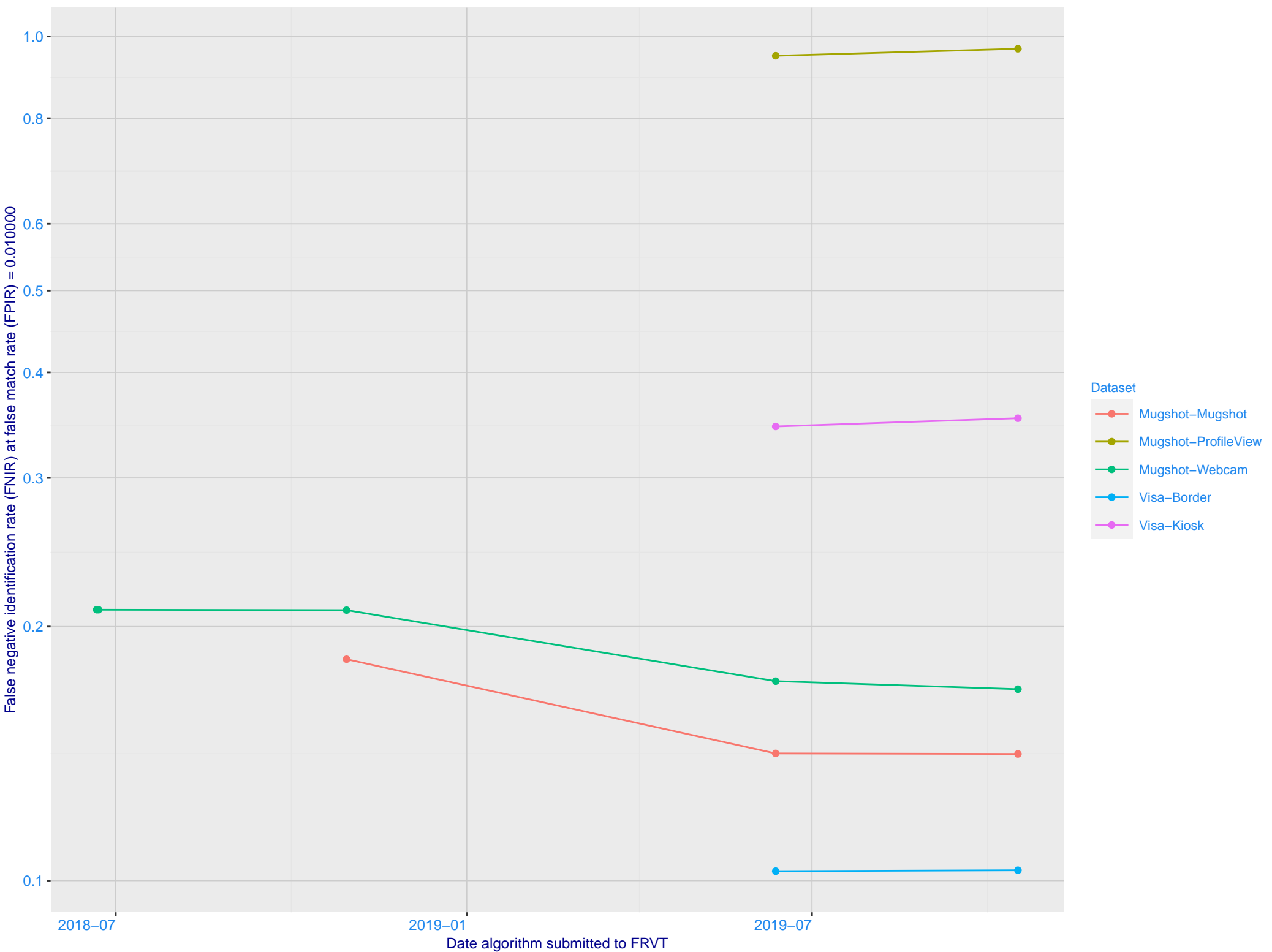
Immigration visa-border ranking 76 (out of 139) -- FNIR(1600000, T, L+1) = 0.1703, FPIR=0.001000 vs. lowest 0.0059 from sensetime\_004

Immigration visa-kiosk ranking 69 (out of 134) -- FNIR(1600000, T, L+1) = 0.6202, FPIR=0.001000 vs. lowest 0.1048 from sensetime\_005

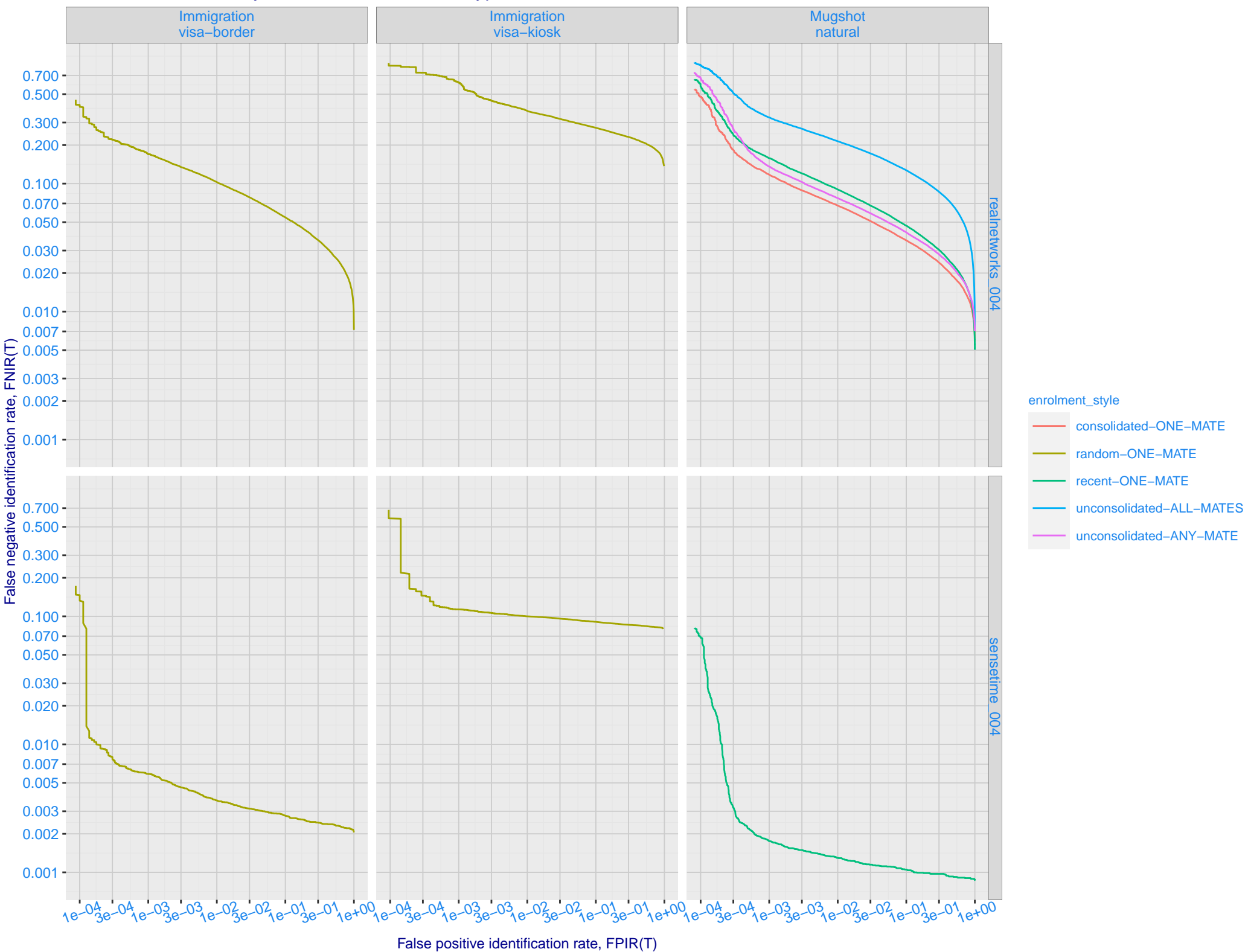
B: Mugshot natural images, identification mode: FNIR(N, L+1, T) vs. most accurate (sensetime\_004)



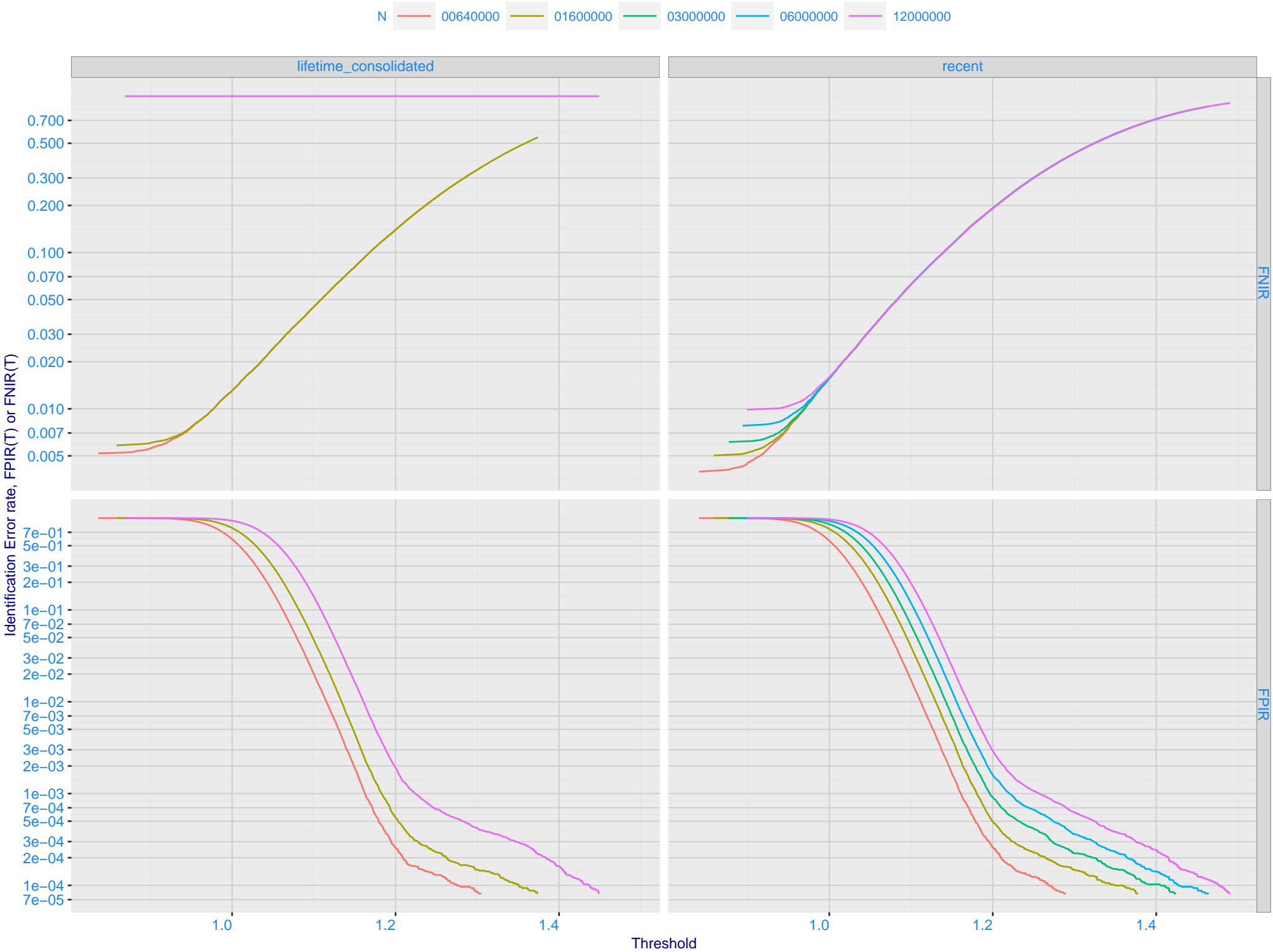
C: Evolution of accuracy for REALNETWORKS algorithms on three datasets 2018 – present



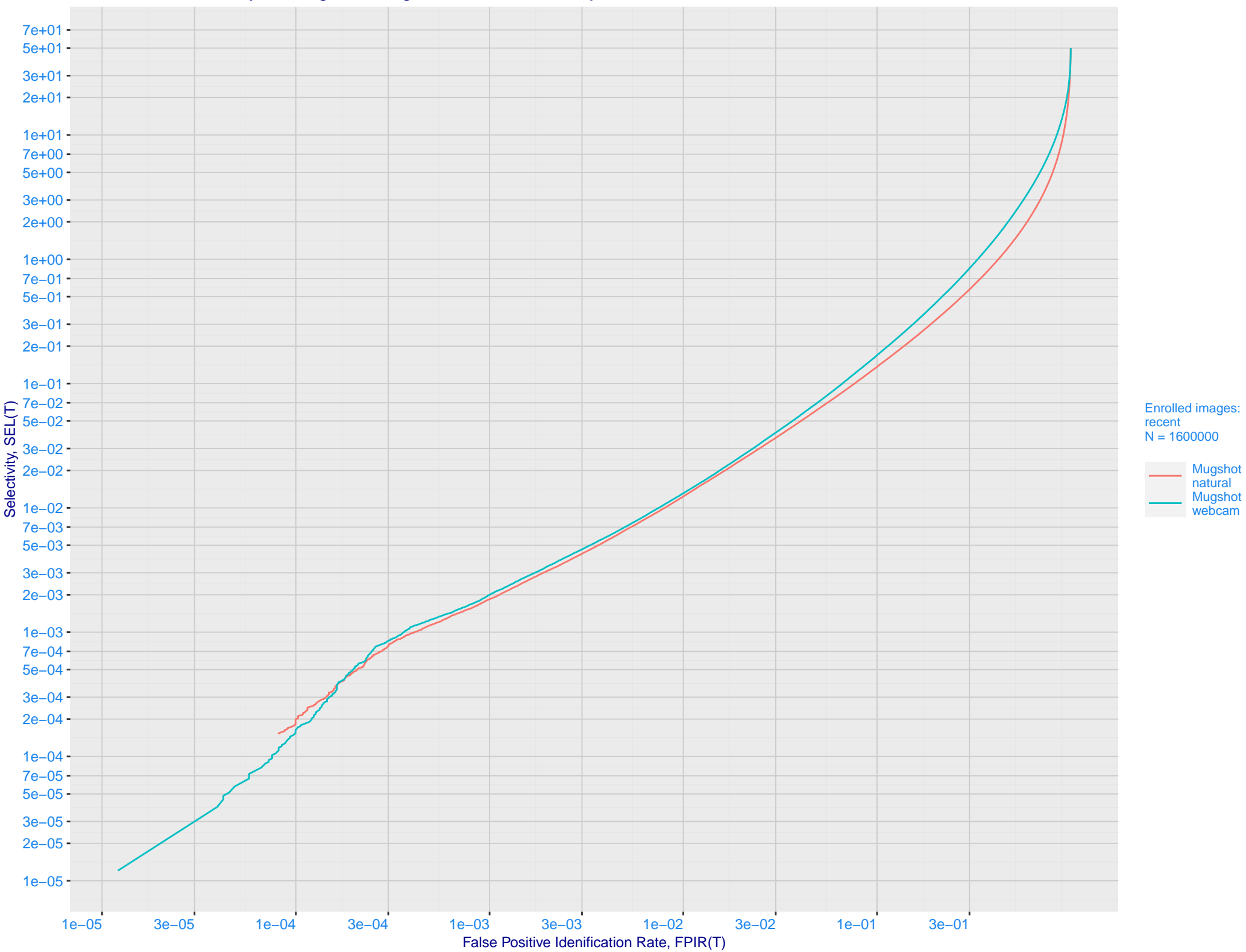
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals



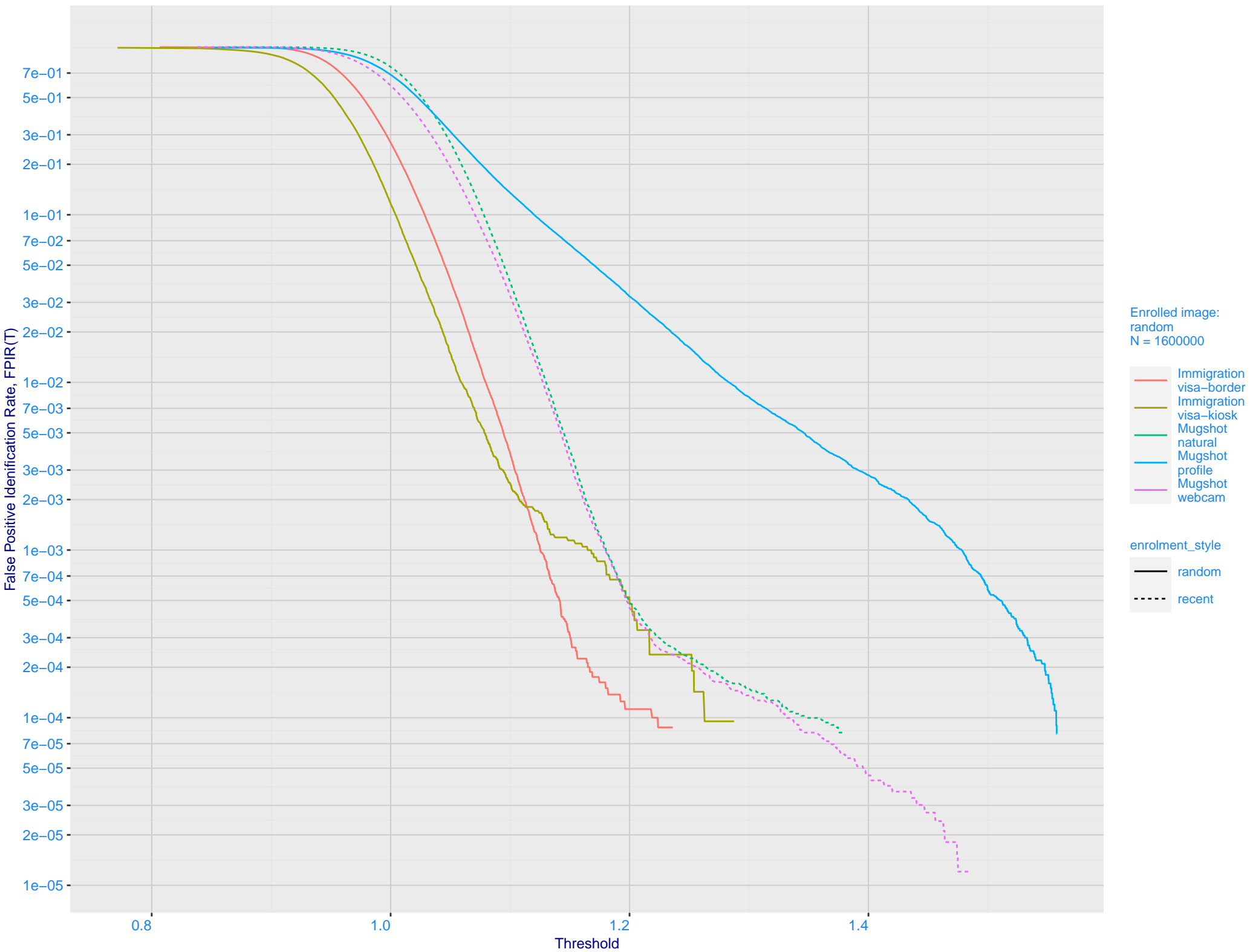
E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



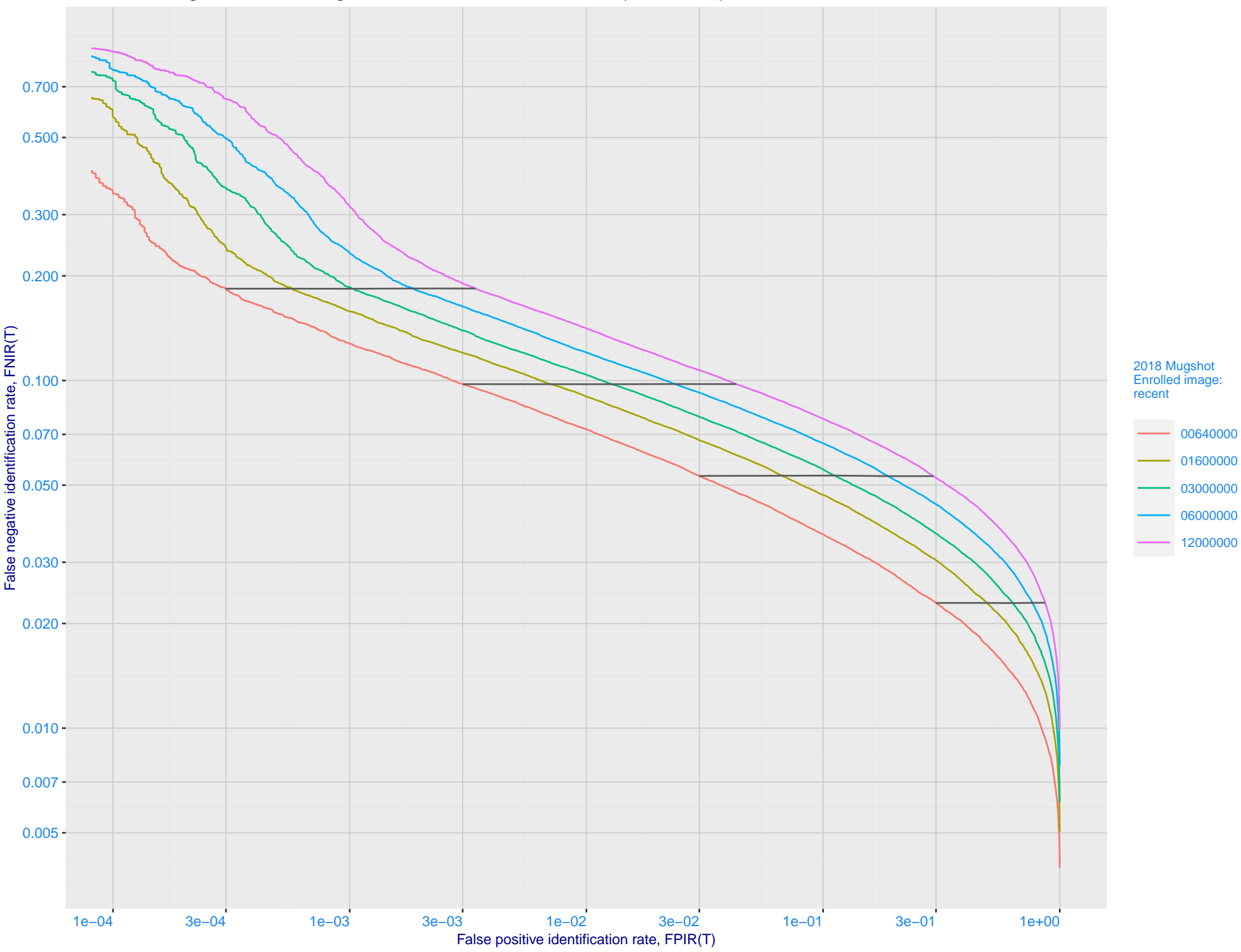
F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate



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

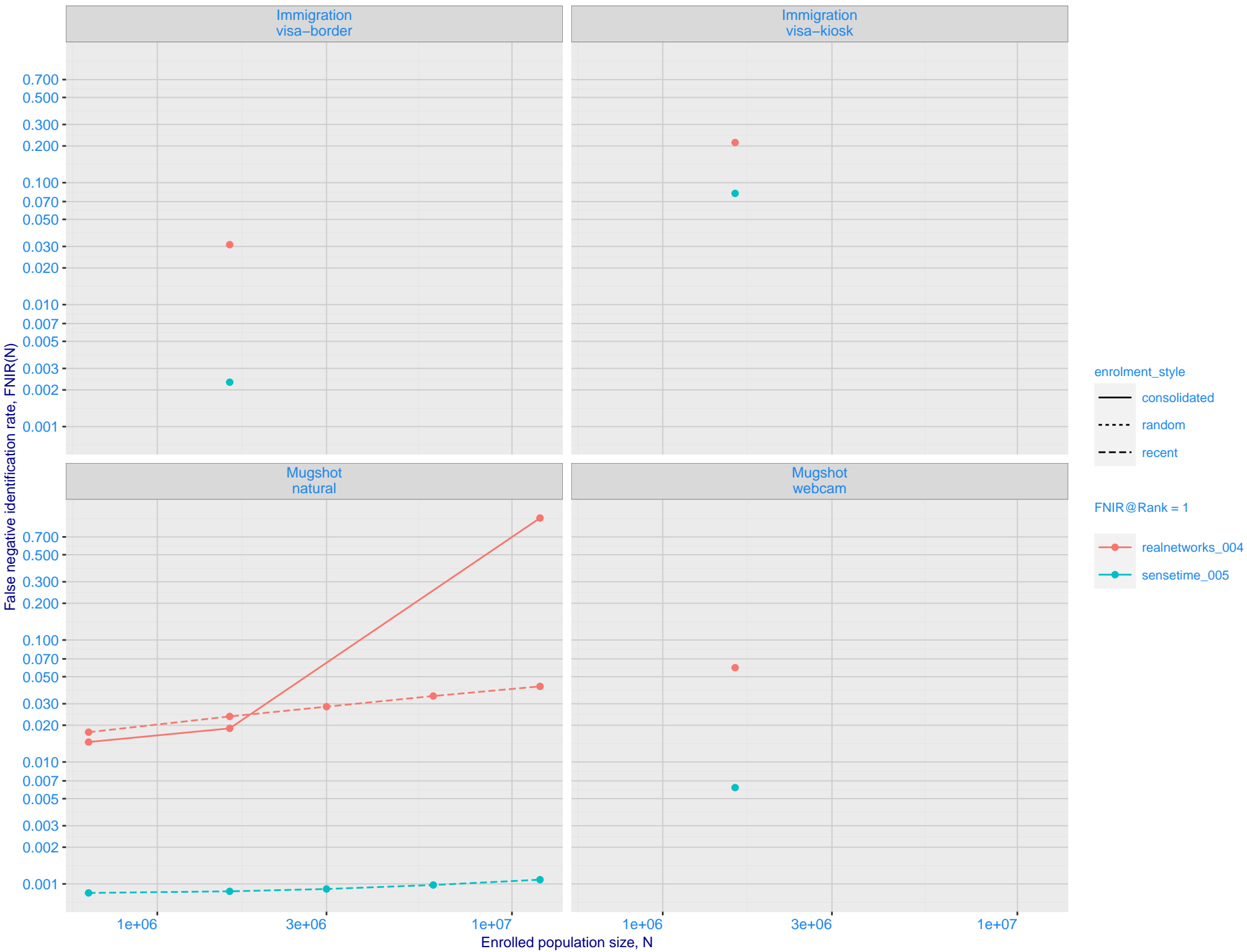


H: DET for Mugshot natural images and various N. Links connect points of equal threshold.

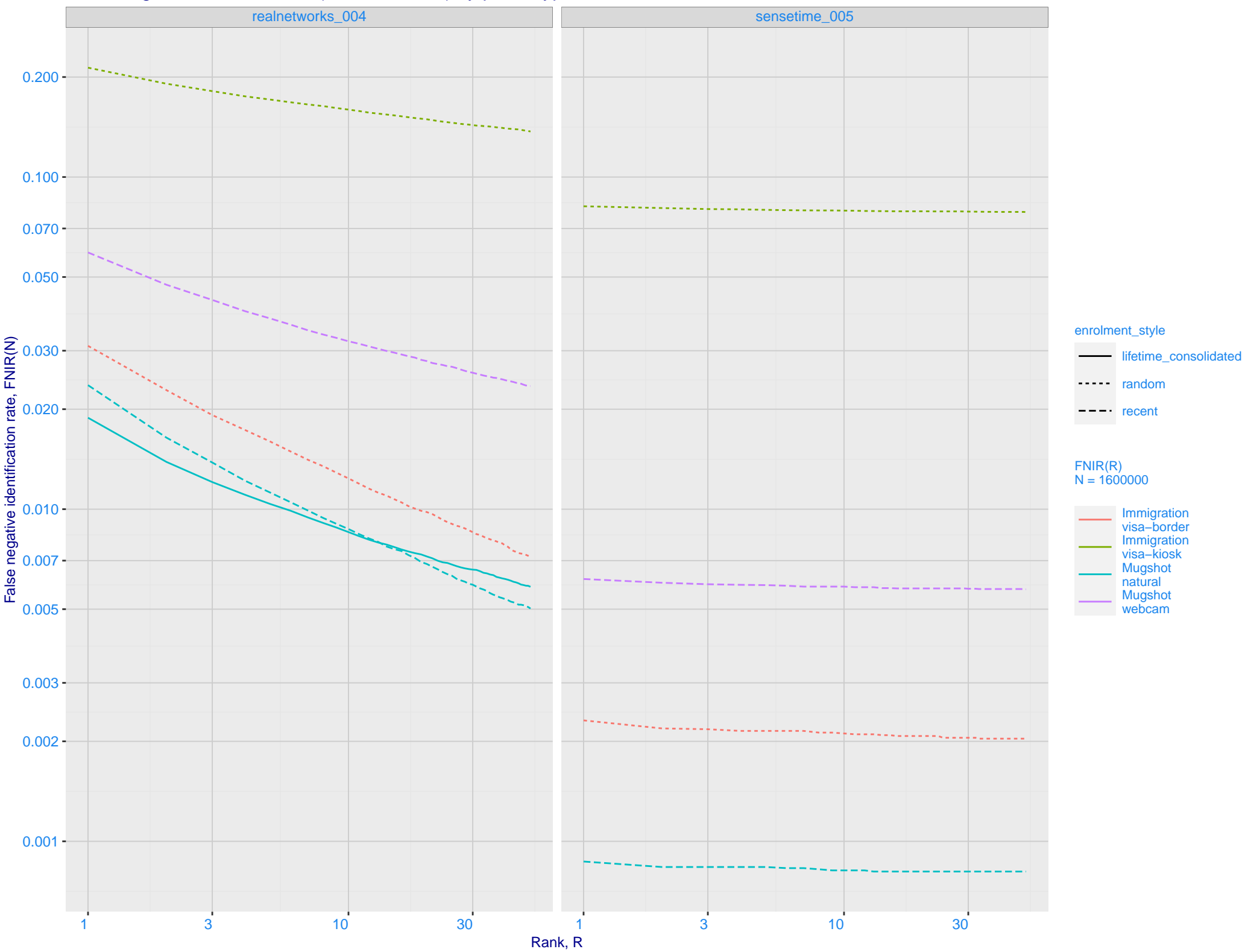




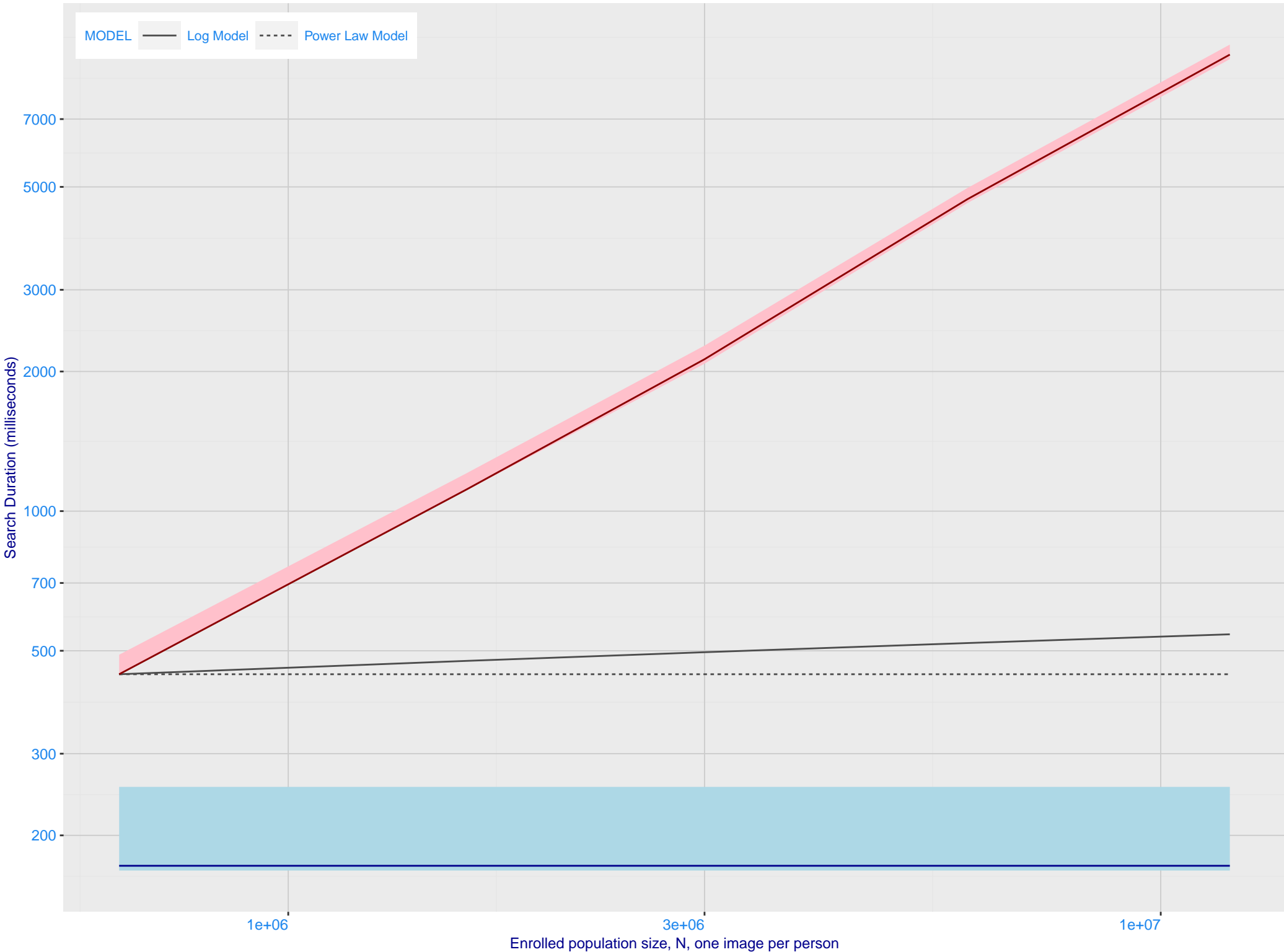
I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_005)



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

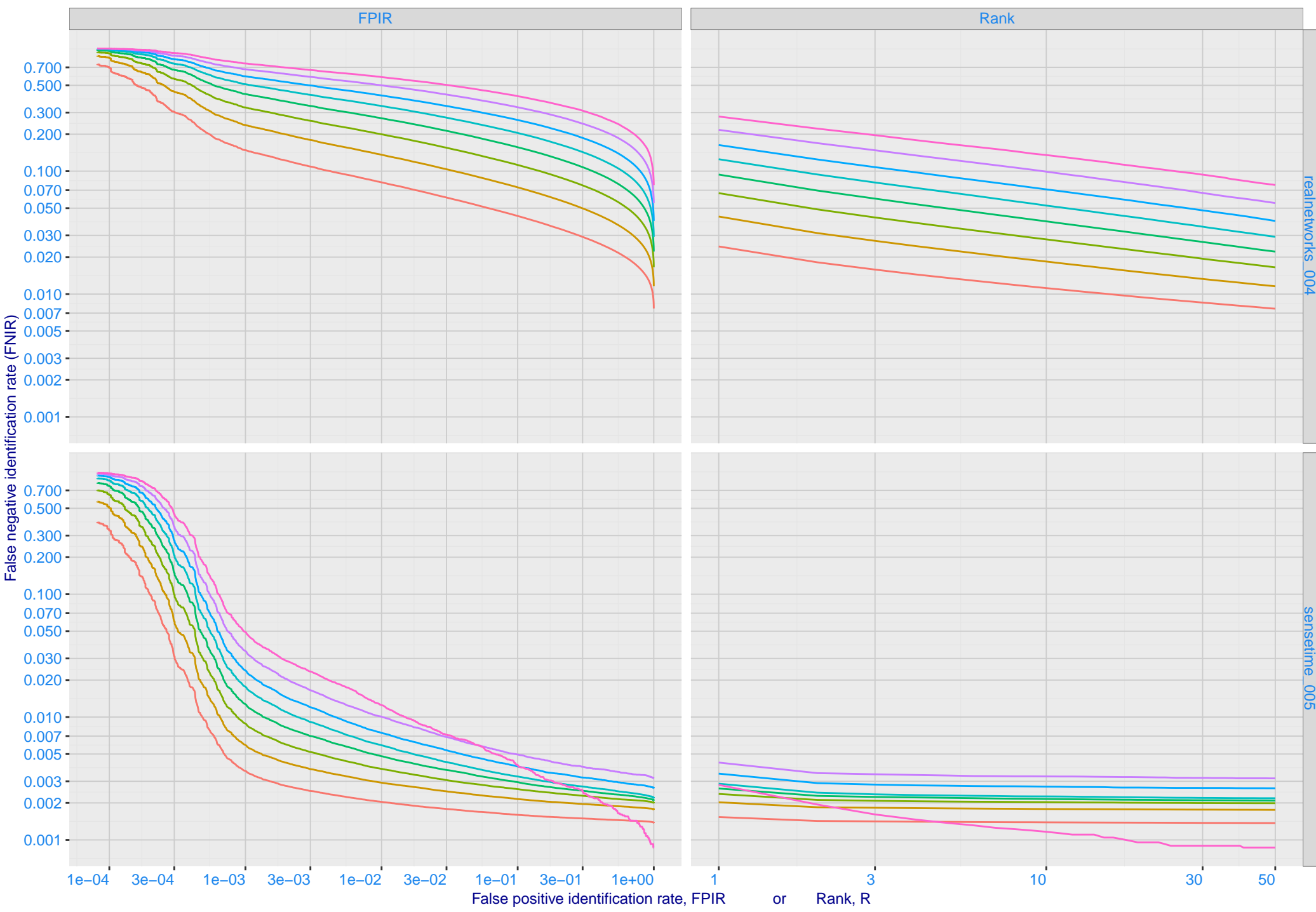
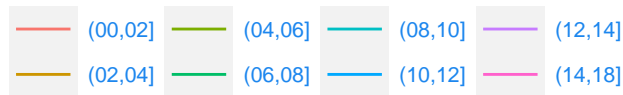


Template duration; search duration vs. N. The blue and pink ribbon covers 95 percent of observed measurements. The template generation time is independent of N. The log and power-law models are fit to the first two (N,T) observations



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

Dataset: 2018 Mugshot N = 3068801



# N: Decline of genuine scores with ageing

