A: Datasheet

Algorithm: sensetime_002

Developer: Sensetime Group

Submission Date: 2019_06_03

Template size: 2056 bytes

Template time (2.5 percentile): 600 msec

Template time (median): 603 msec

Template time (97.5 percentile): 847 msec

Investigation:

Frontal mugshot ranking 142 (out of 259) –– FNIR(1600000, 0, 1) = 0.0137 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 64 (out of 221) –– FNIR(1600000, 0, 1) = 0.0196 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 34 (out of 190) –– FNIR(1600000, 0, 1) = 0.3839 vs. lowest 0.0591 from sensetime_005

Immigration visa–border ranking 57 (out of 142) –– FNIR(1600000, 0, 1) = 0.0108 vs. lowest 0.0014 from visionlabs_009

Immigration visa–kiosk ranking 25 (out of 139) –– FNIR(1600000, 0, 1) = 0.1037 vs. lowest 0.0694 from cib_000

Identification:

Frontal mugshot ranking 22 (out of 259) –– FNIR(1600000, T, L+1) = 0.0148, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004
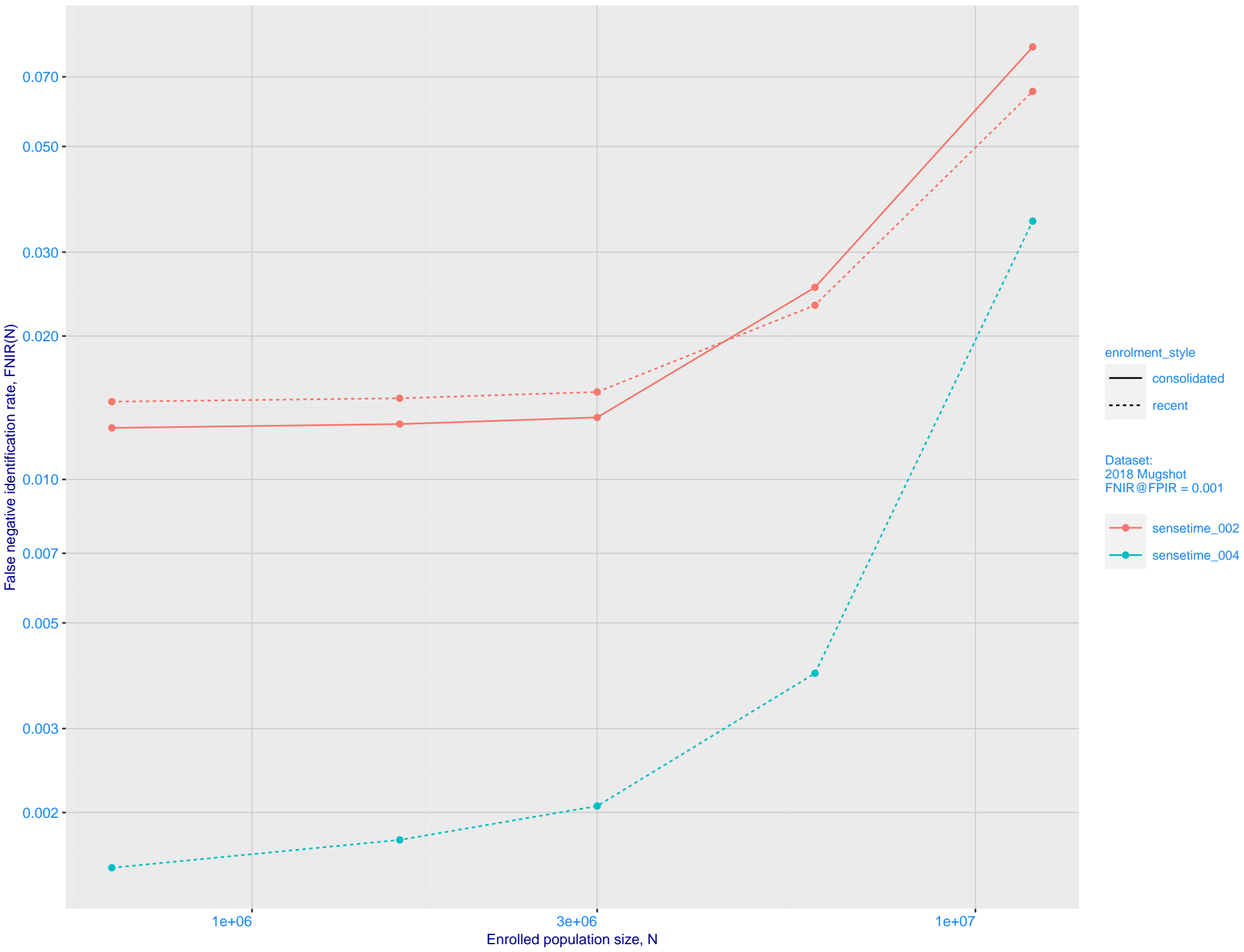
Mugshot webcam ranking 11 (out of 219) –– FNIR(1600000, T, L+1) = 0.0277, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 87 (out of 189) –– FNIR(1600000, T, L+1) = 0.9939, FPIR=0.001000 vs. lowest 0.1733 from sensetime_005
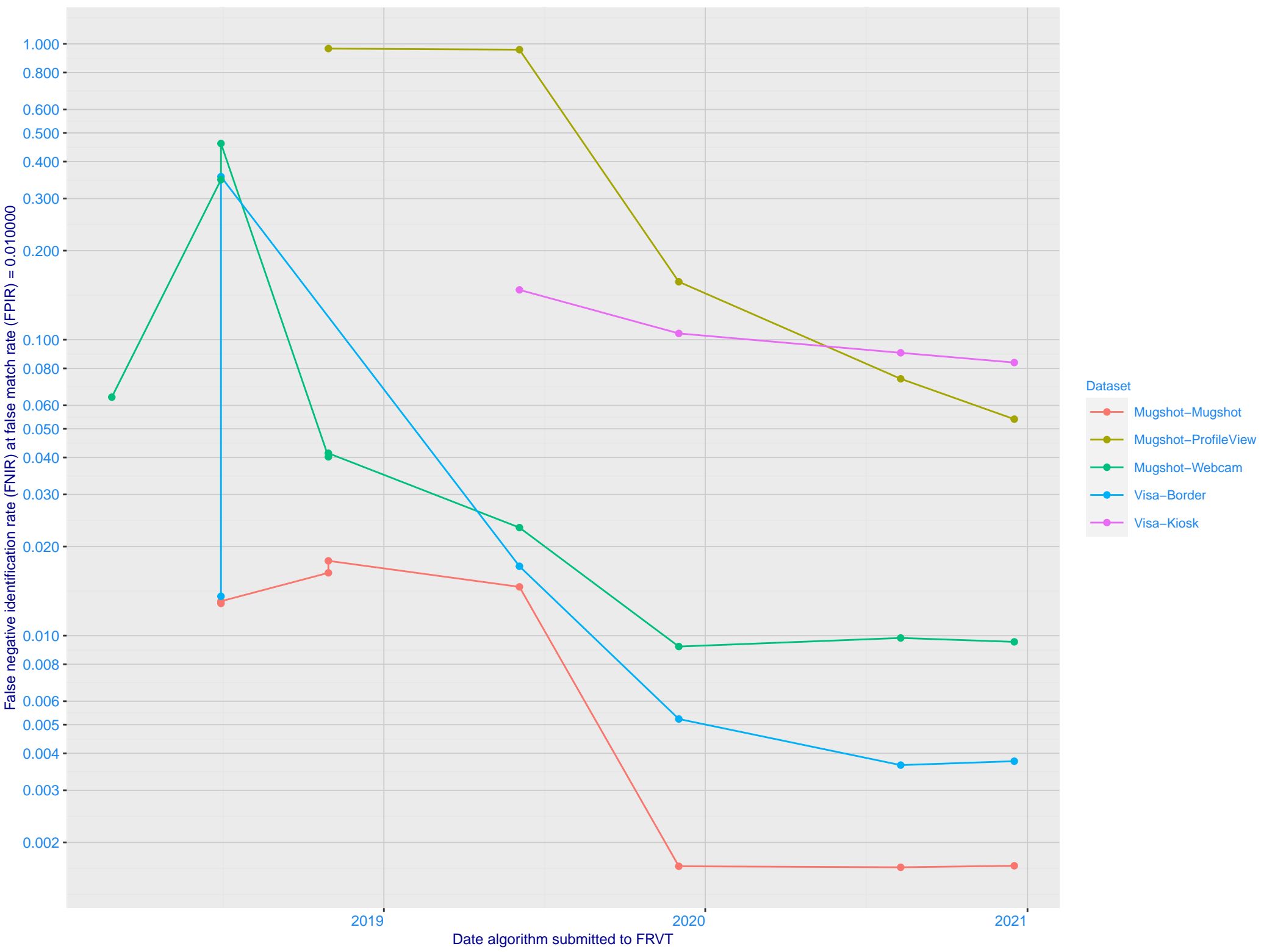
Immigration visa–border ranking 25 (out of 139) –– FNIR(1600000, T, L+1) = 0.0316, FPIR=0.001000 vs. lowest 0.0059 from sensetime_004

Immigration visa–kiosk ranking 60 (out of 134) –– FNIR(1600000, T, L+1) = 0.5228, FPIR=0.001000 vs. lowest 0.1048 from sensetime_005
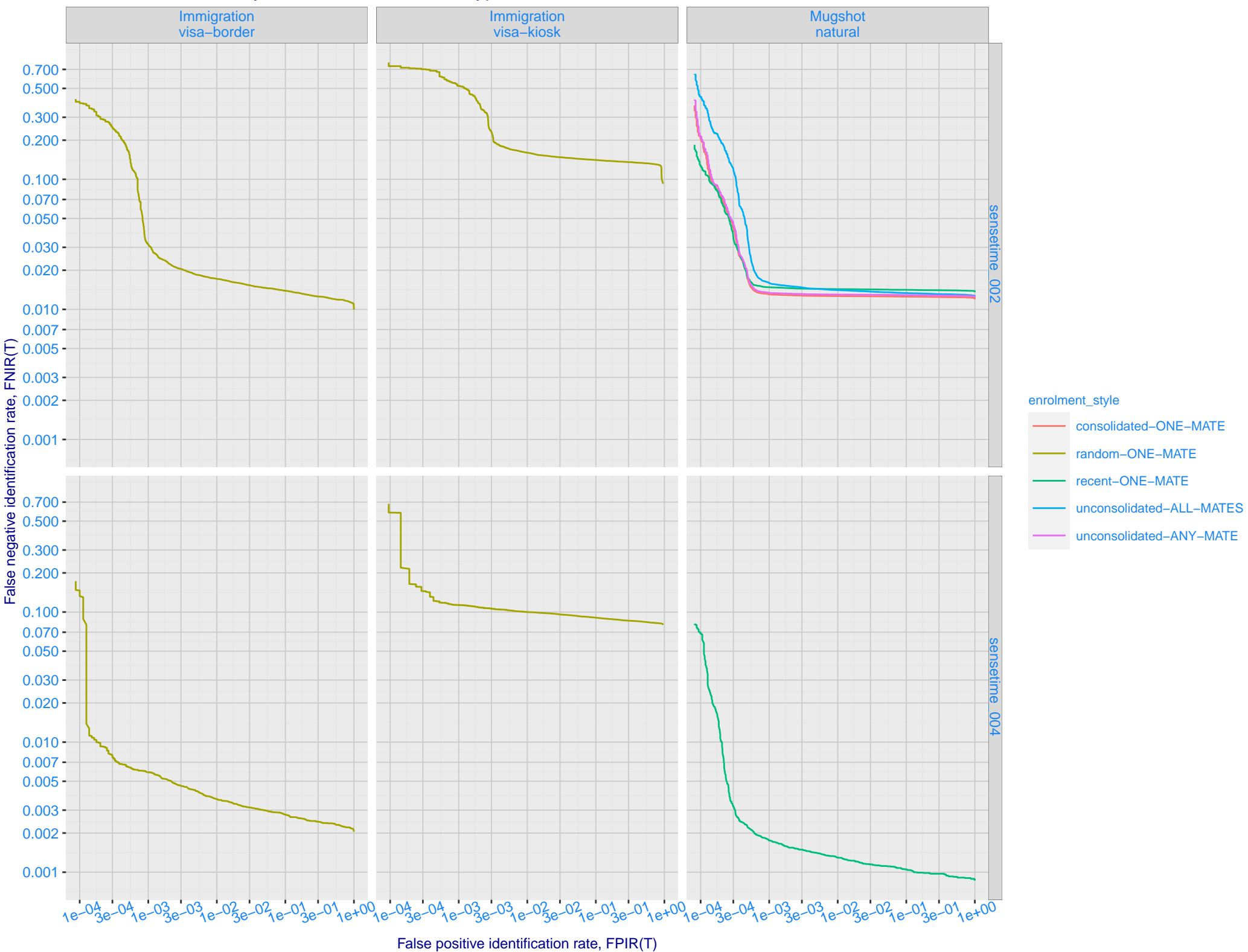
B: Mugshot natural images, identification mode: FNIR(N, L+1, T) vs. most accurate (sensetime_004)
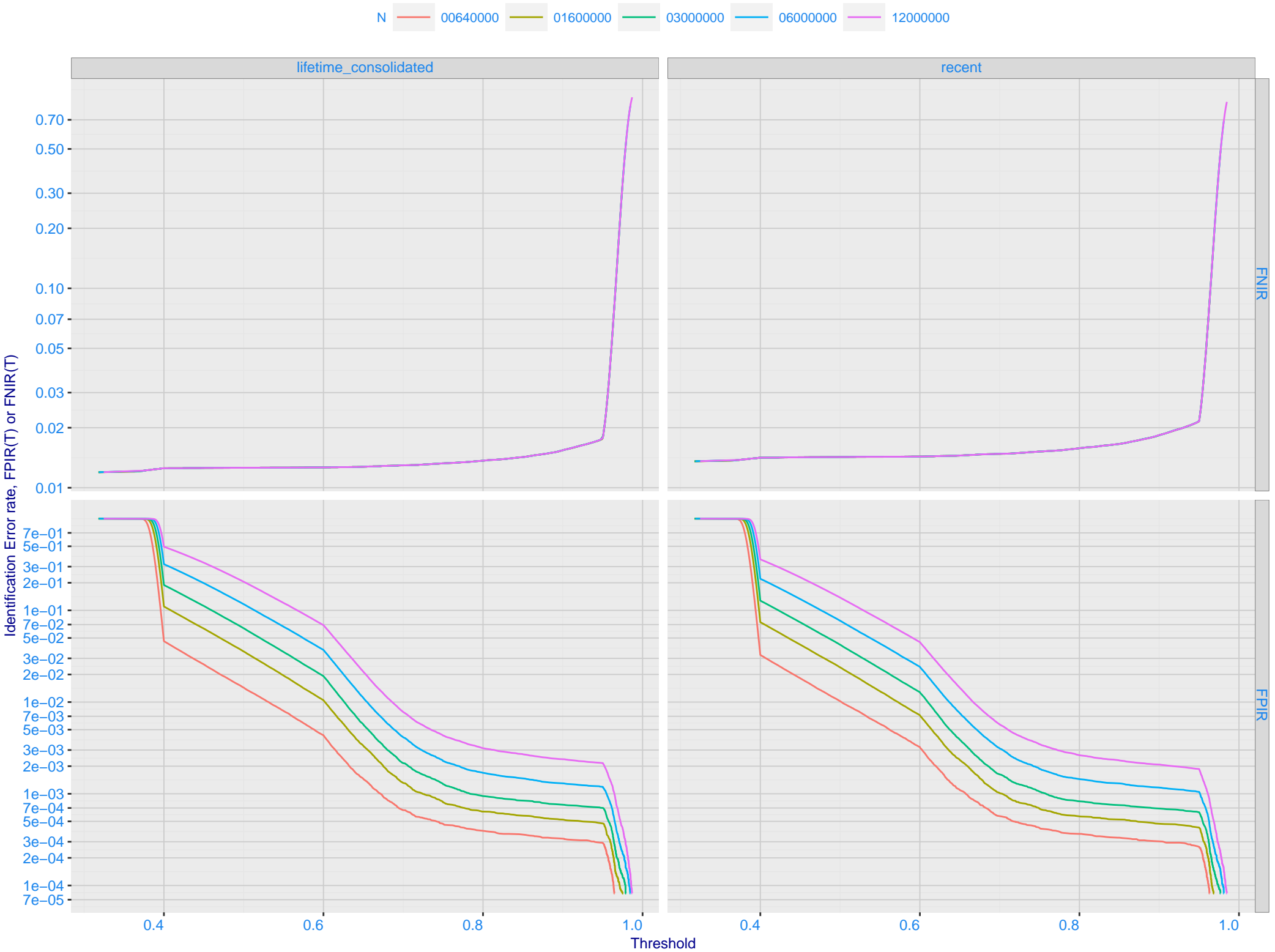
C: Evolution of accuracy for SENSETIME algorithms on three datasets 2018 – present
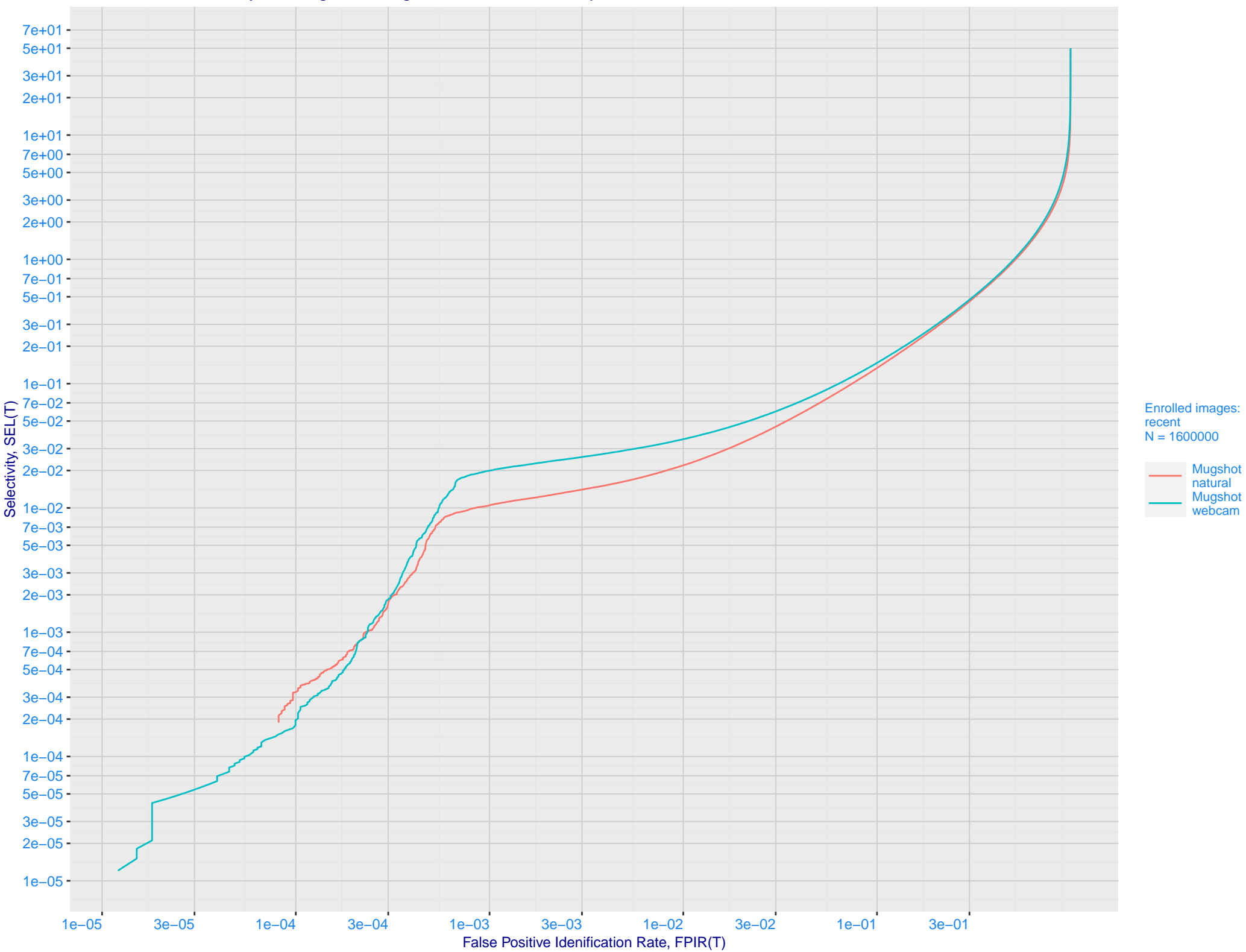
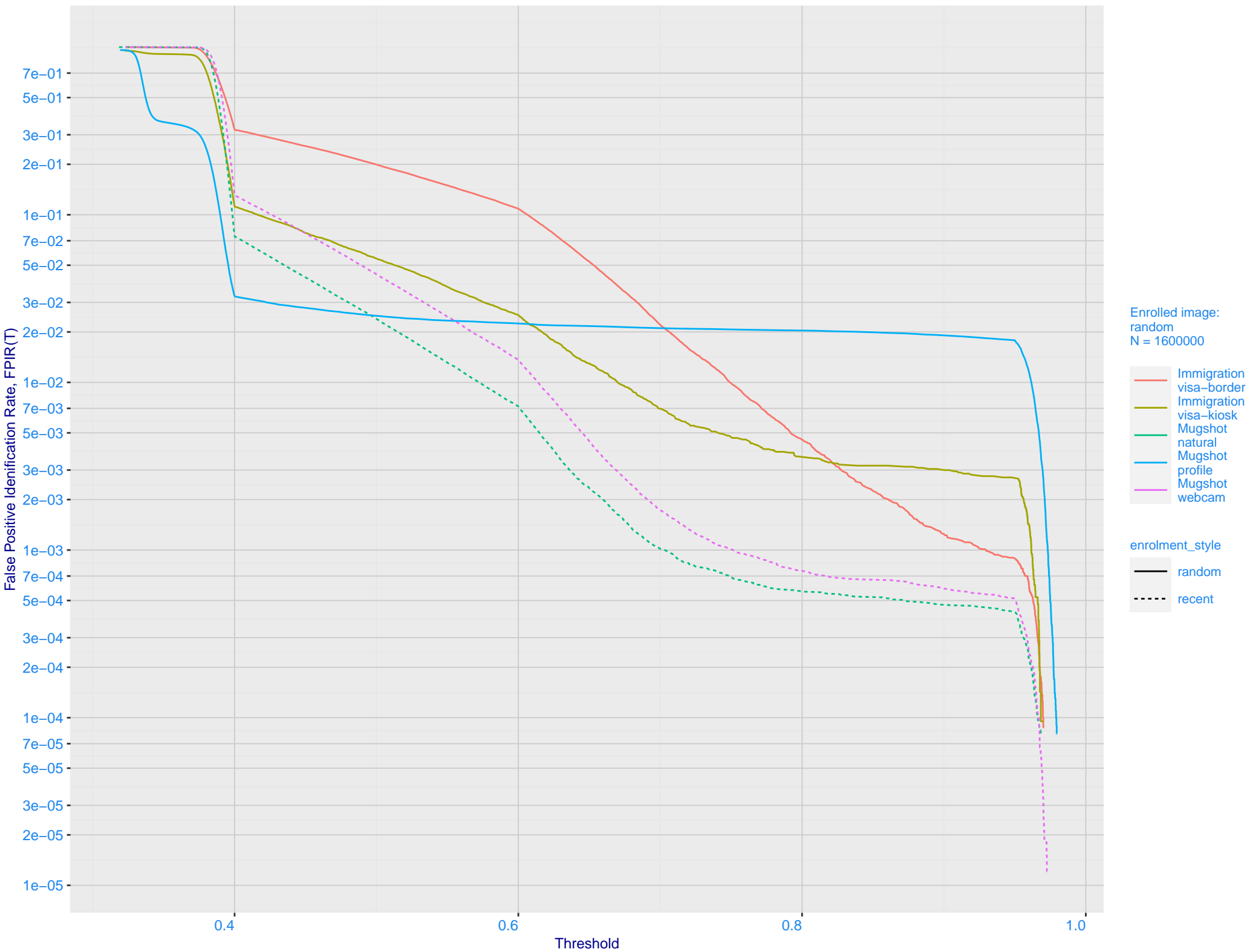D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals

E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images
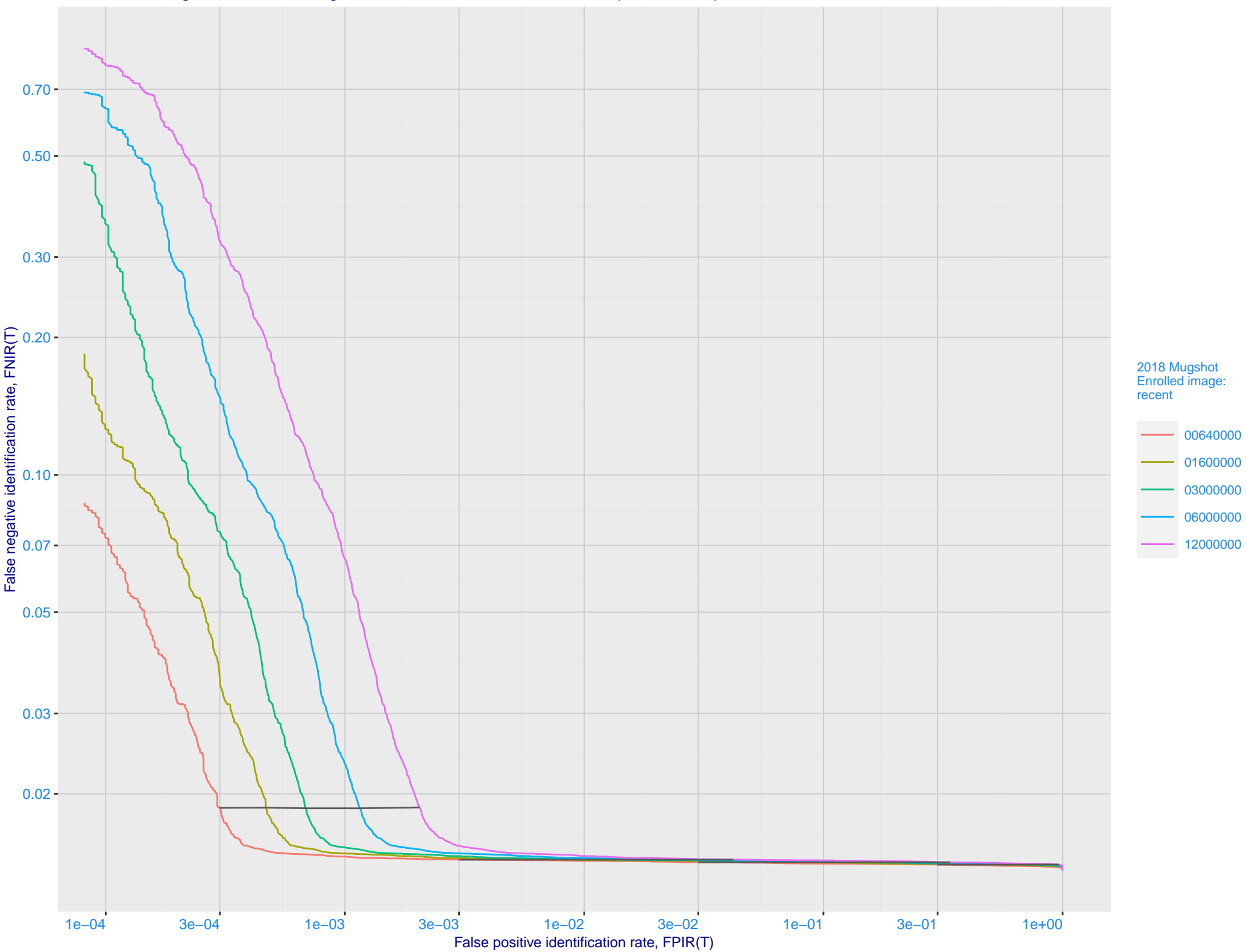
F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate
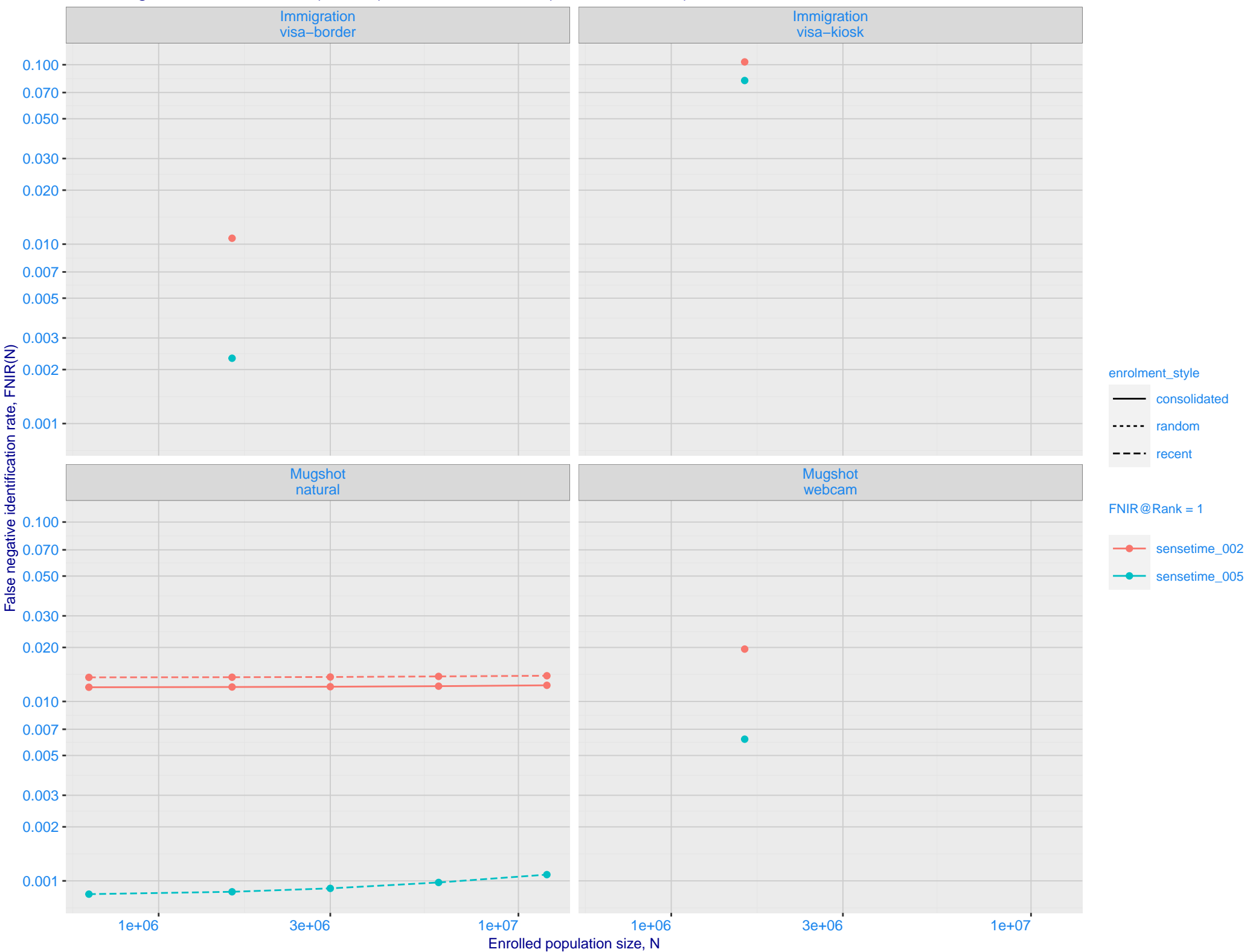
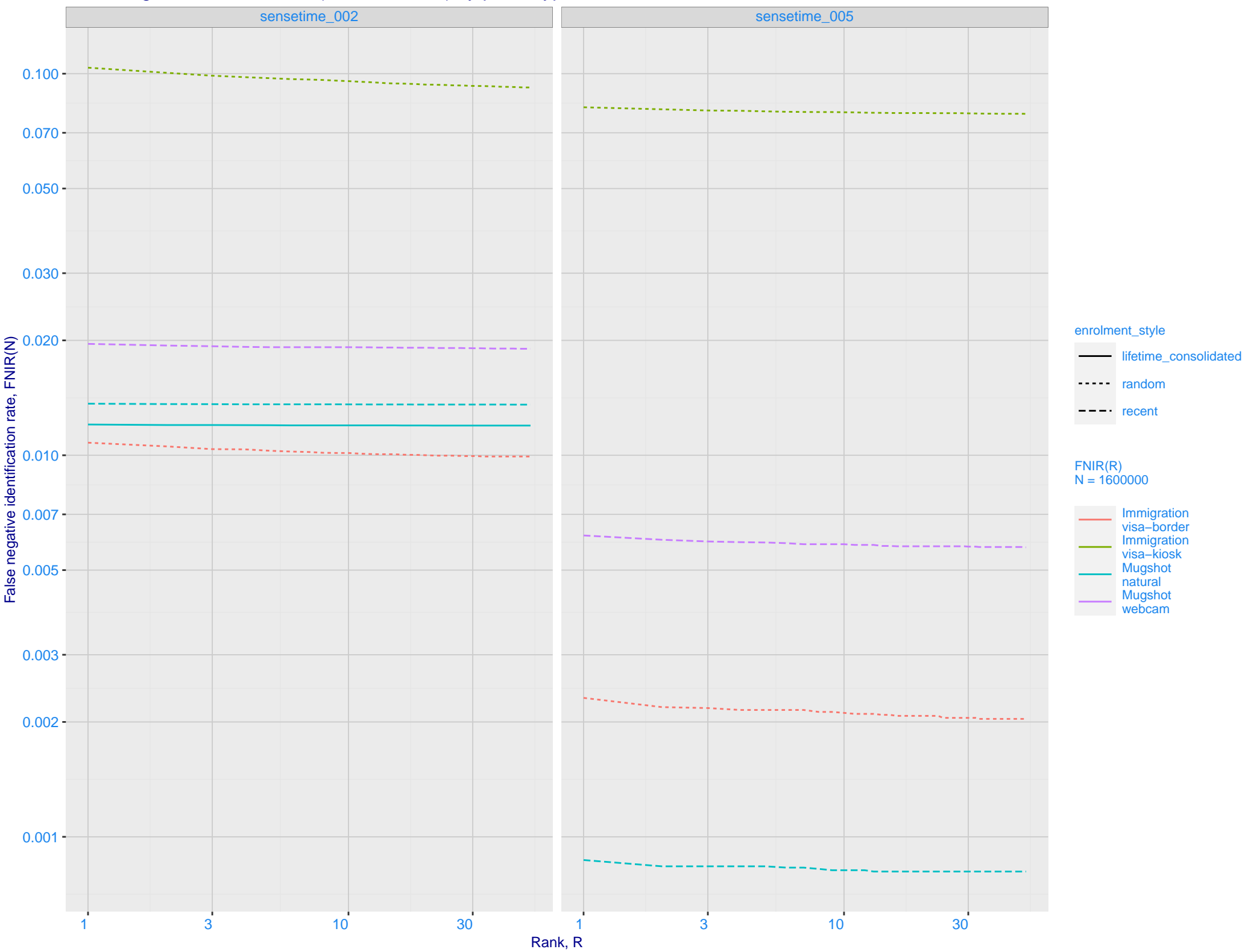G: FPIR dependence on T by probe type for N = 1600000 subjects

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

False negative identification rate, FNIR(T)

False positive identification rate, FPIR(T)

2018 Mugshot
Enrolled image:
recent

00640000
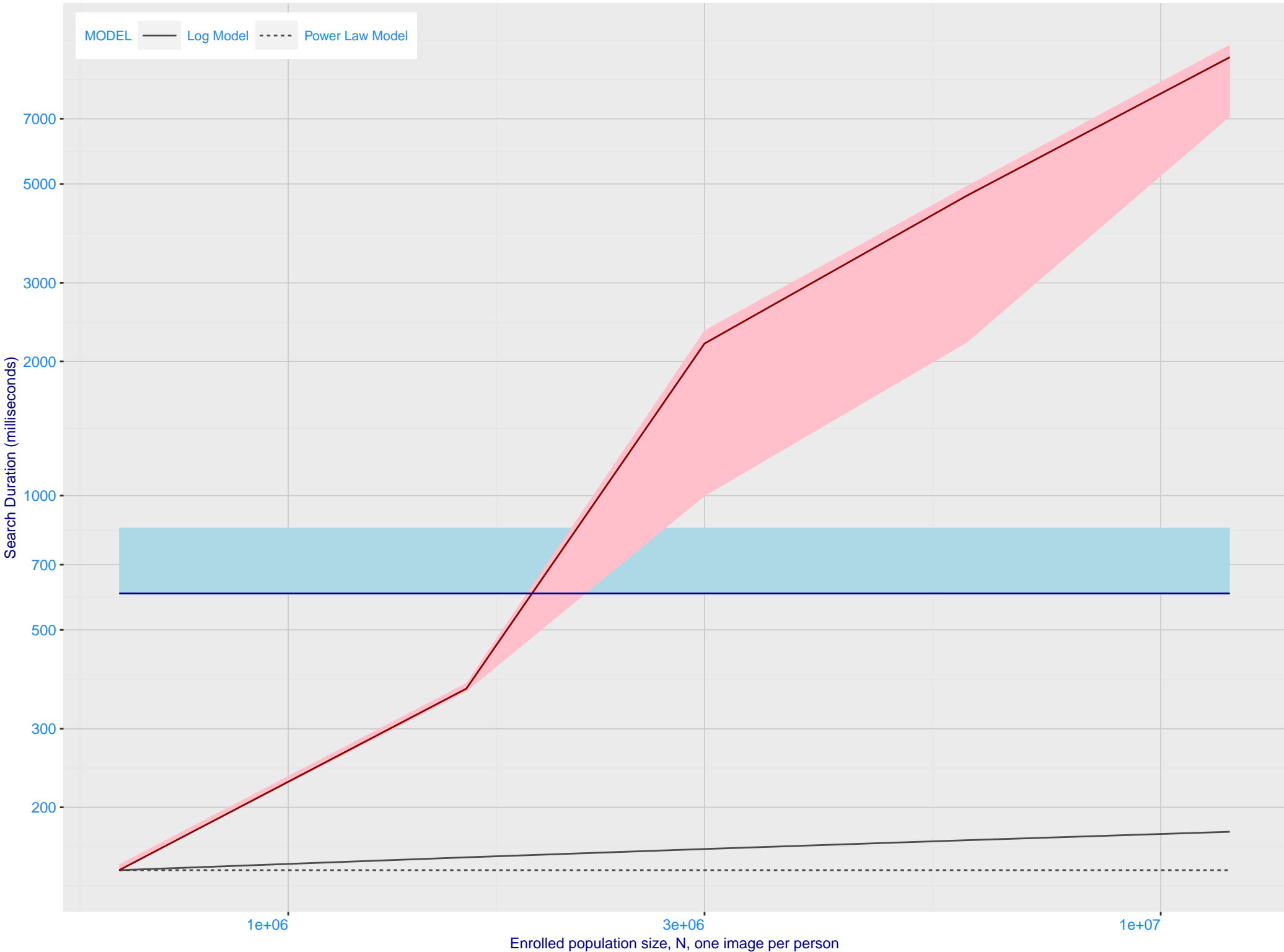01600000
03000000
06000000
12000000

I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005)

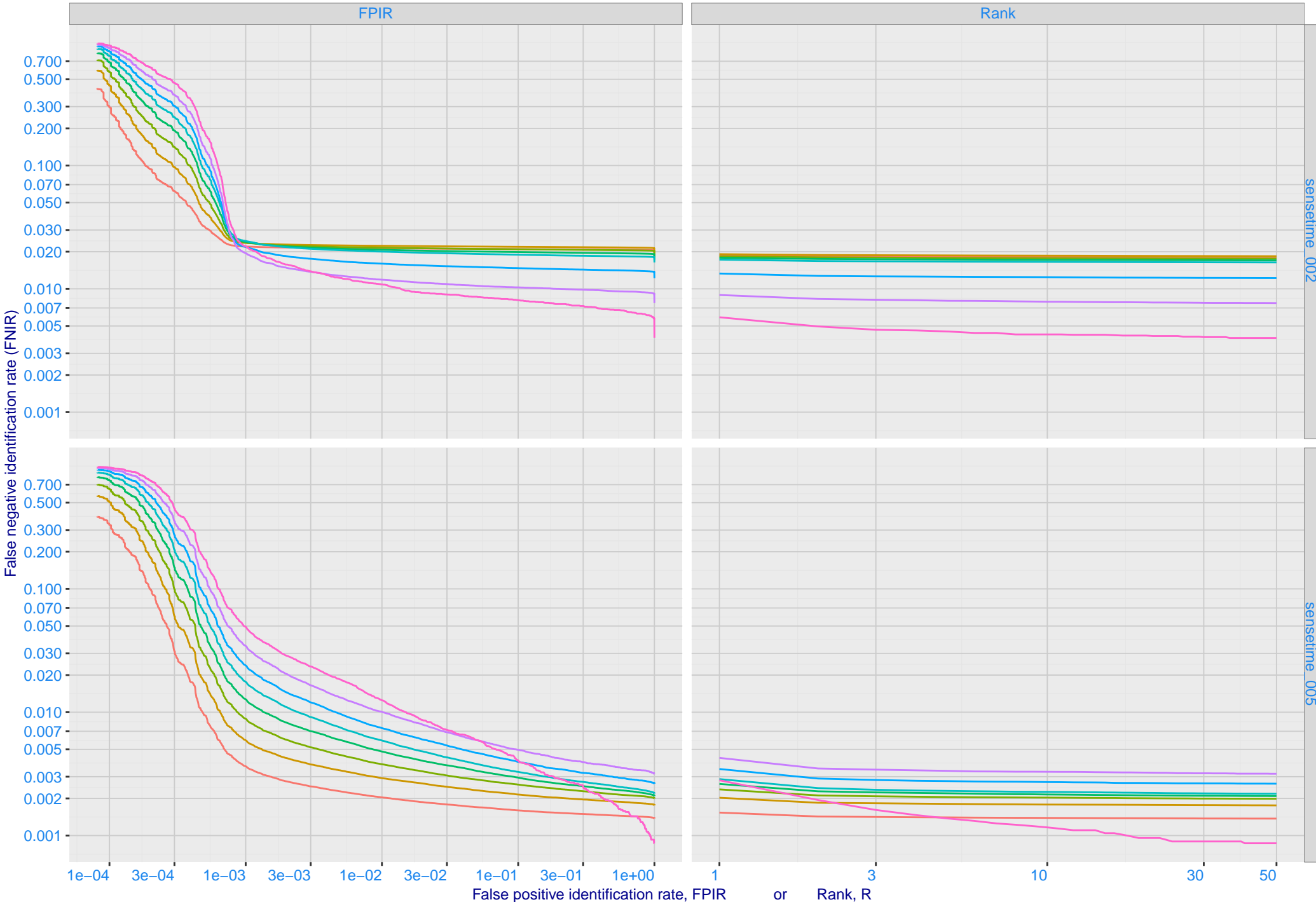J: Investigational mode: FNIR(1600000, R, 0) by probe type

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

MODEL — Log Model ····· Power Law Model

Search Duration (milliseconds)

Enrolled population size, N, one image per person

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

N: Decline of genuine scores with ageing