A: Datasheet

Algorithm: microsoft_6

Developer: Microsoft

Submission Date: 2018_10_29

Template size: 1024 bytes

Template time (2.5 percentile): 649 msec

Template time (median): 672 msec

Template time (97.5 percentile): 978 msec

Investigation:

Frontal mugshot ranking 33 (out of 279) –– FNIR(1600000, 0, 1) = 0.0020 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 27 (out of 241) –– FNIR(1600000, 0, 1) = 0.0114 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 19 (out of 210) –– FNIR(1600000, 0, 1) = 0.1503 vs. lowest 0.0587 from xforwardai_002

Immigration visa–border ranking 27 (out of 168) –– FNIR(1600000, 0, 1) = 0.0037 vs. lowest 0.0013 from visionlabs_010

Immigration visa–kiosk ranking 31 (out of 165) –– FNIR(1600000, 0, 1) = 0.1004 vs. lowest 0.0568 from cloudwalk_hr_000

Identification:

Frontal mugshot ranking 21 (out of 279) –– FNIR(1600000, T, L+1) = 0.0120, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 21 (out of 236) –– FNIR(1600000, T, L+1) = 0.0366, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 5 (out of 209) –– FNIR(1600000, T, L+1) = 0.3864, FPIR=0.001000 vs. lowest 0.1331 from cloudwalk_hr_000

Immigration visa–border ranking 35 (out of 167) –– FNIR(1600000, T, L+1) = 0.0317, FPIR=0.001000 vs. lowest 0.0047 from idemia_008

Immigration visa–kiosk ranking 22 (out of 162) –– FNIR(1600000, T, L+1) = 0.1853, FPIR=0.001000 vs. lowest 0.0996 from cloudwalk_hr_000
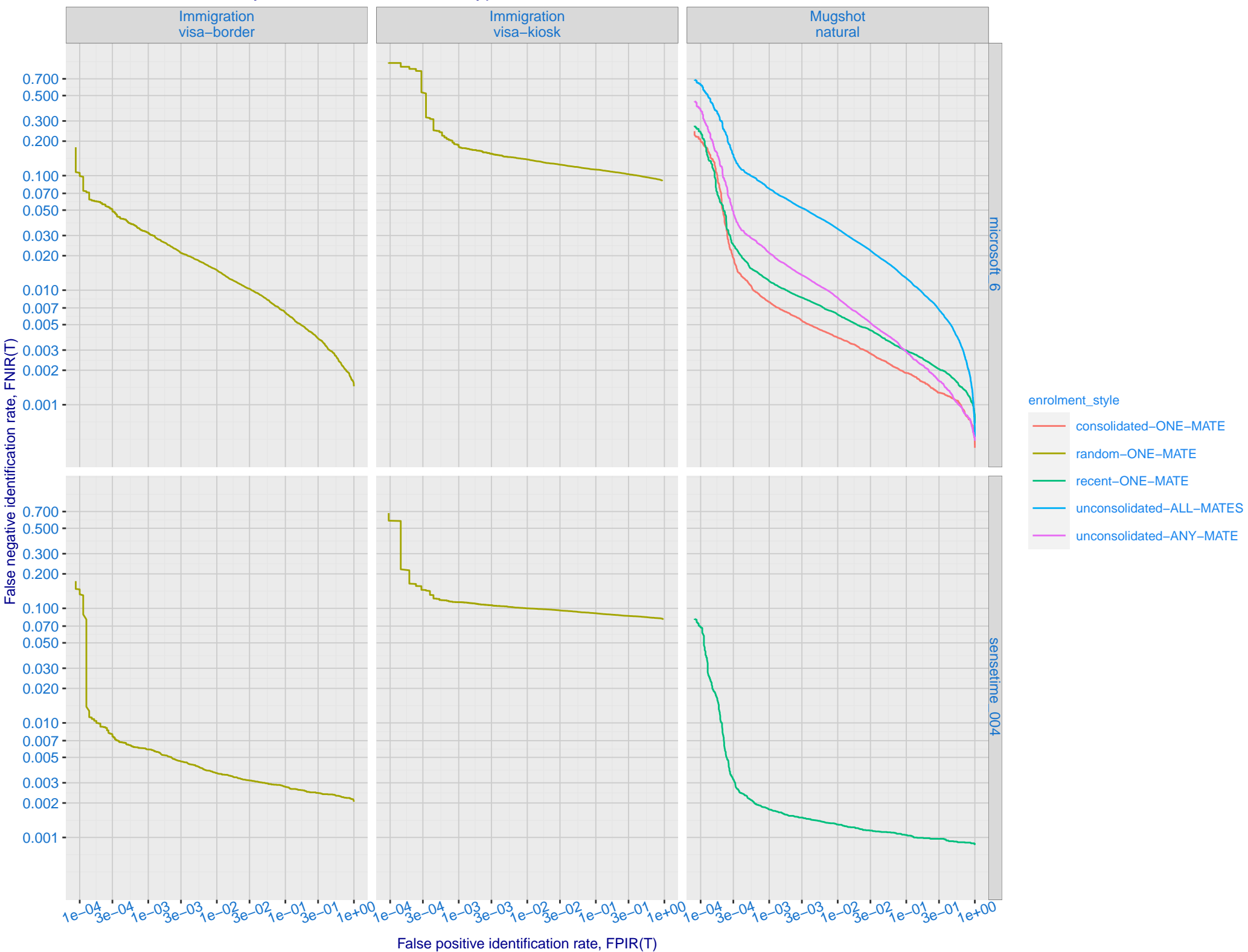
B: Mugshot natural images, identification mode: FNIR(N, L+1, T) vs. most accurate (sensetime_004)
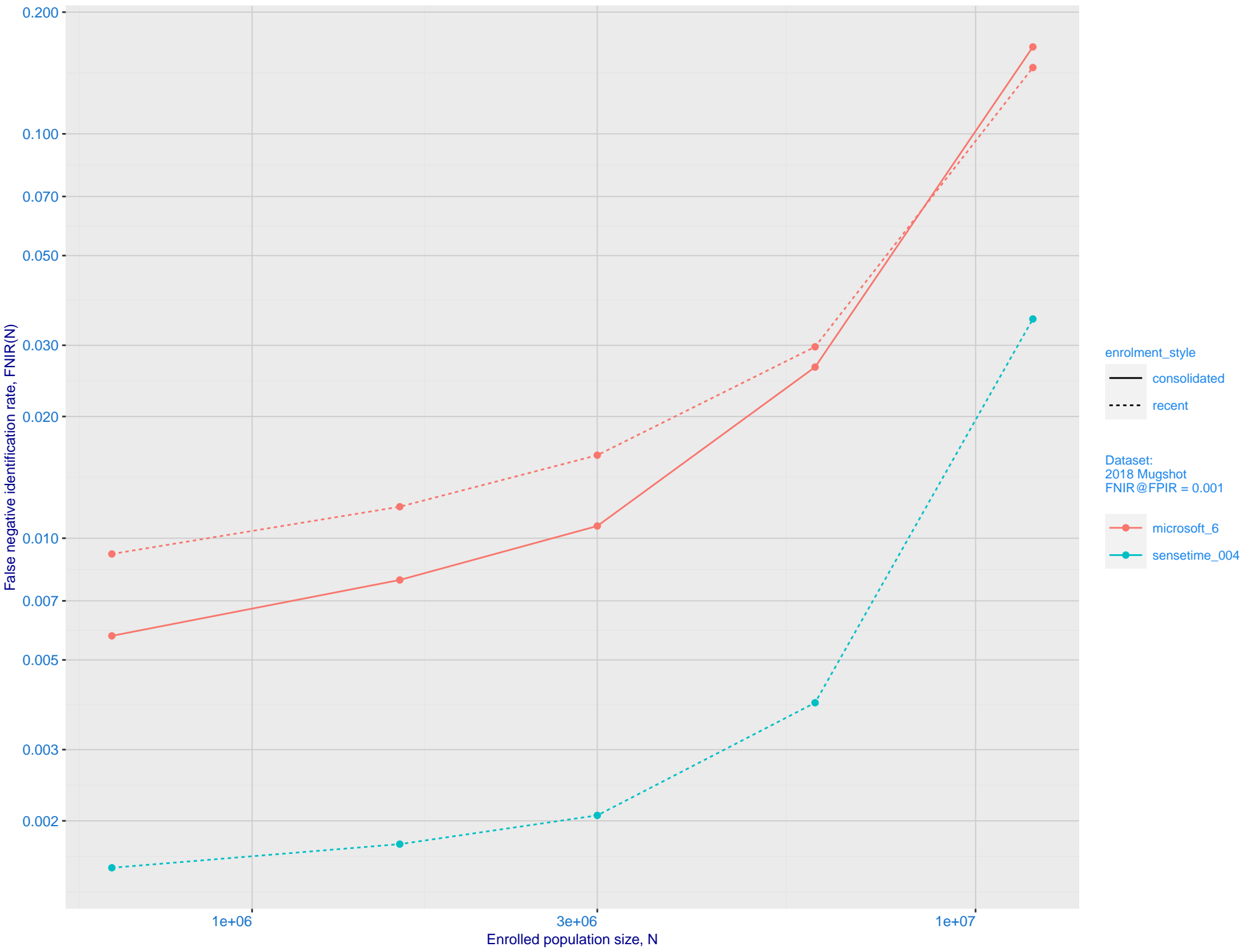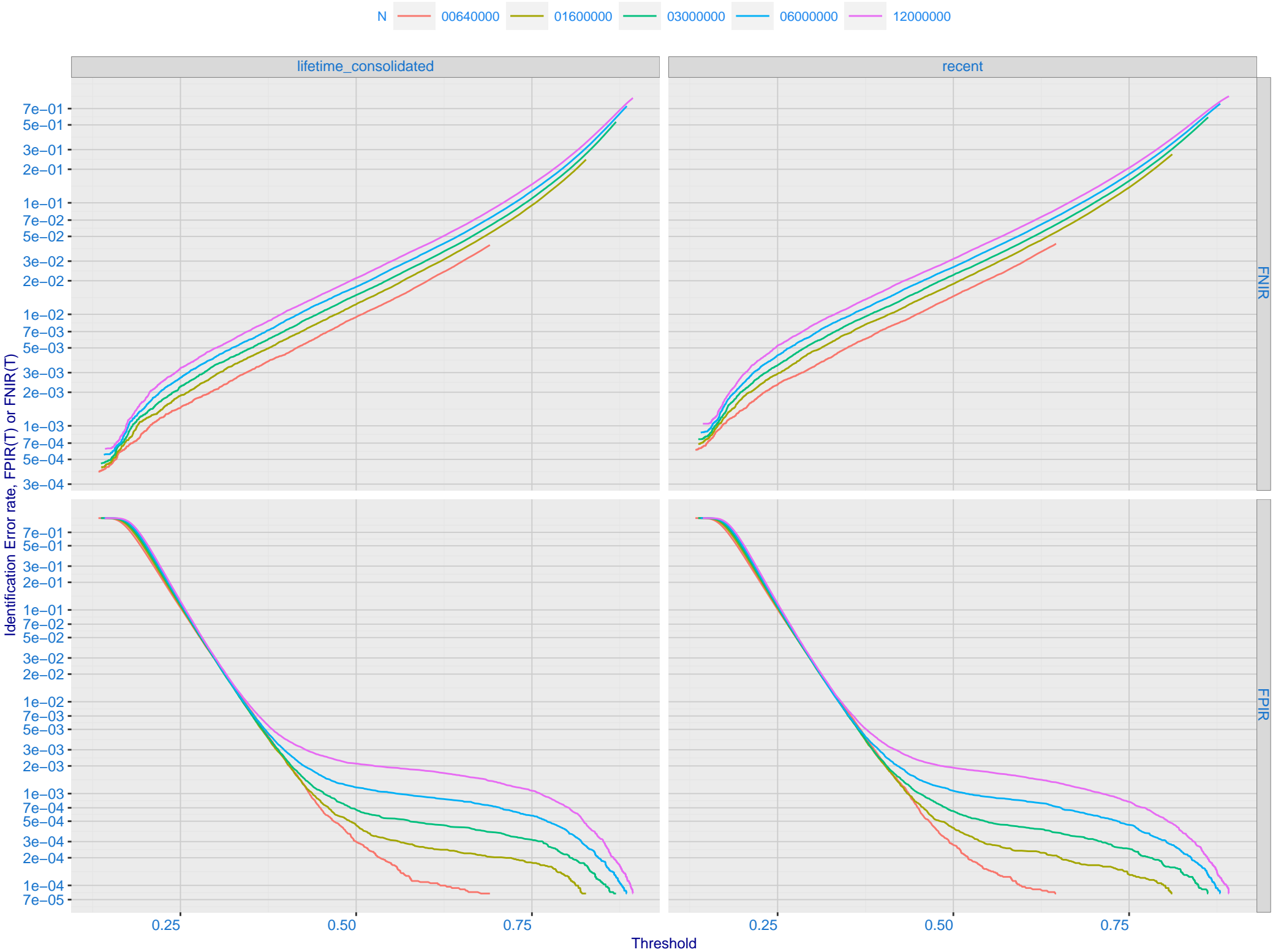
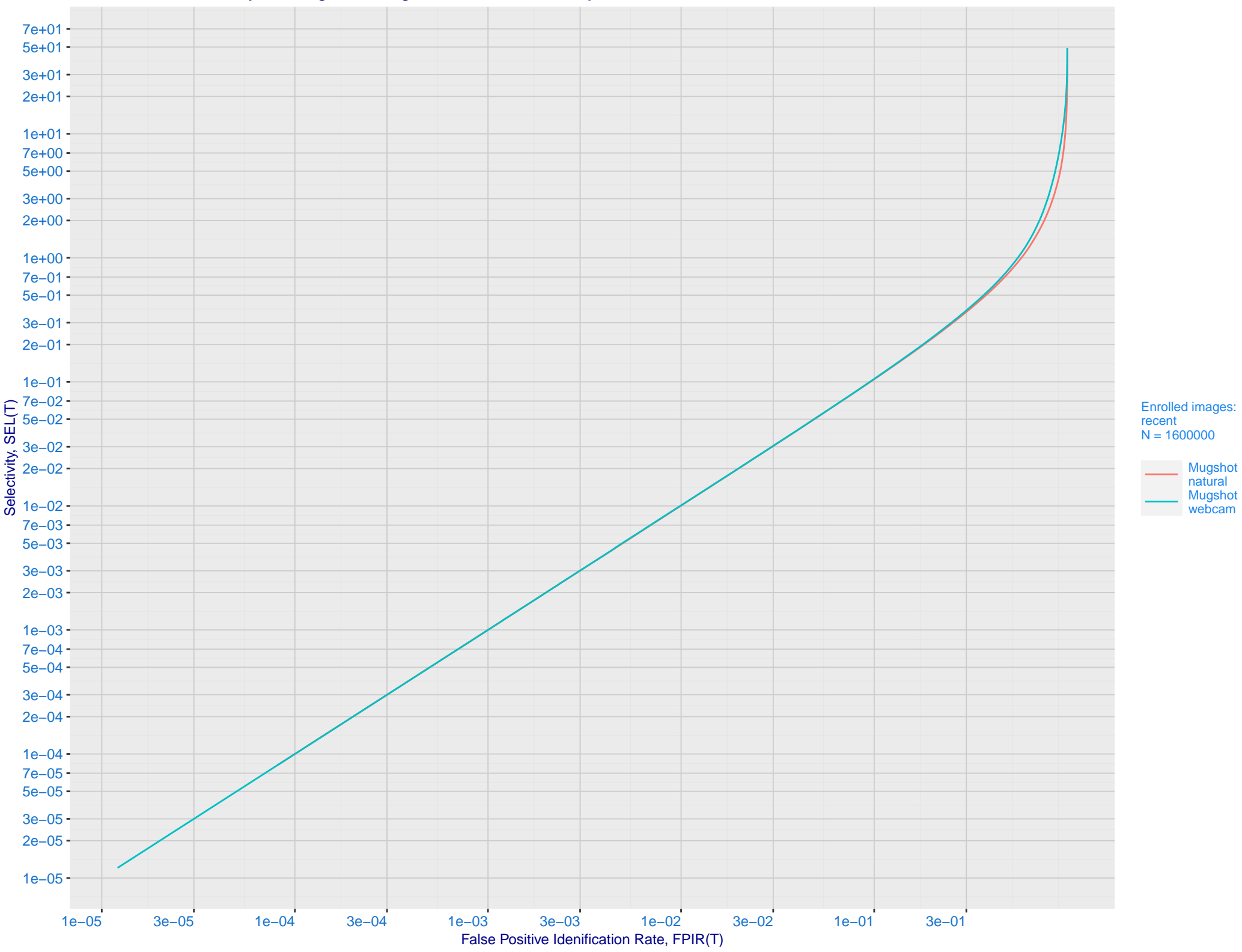**C: Evolution of accuracy for MICROSOFT algorithms on three datasets 2018 – present**
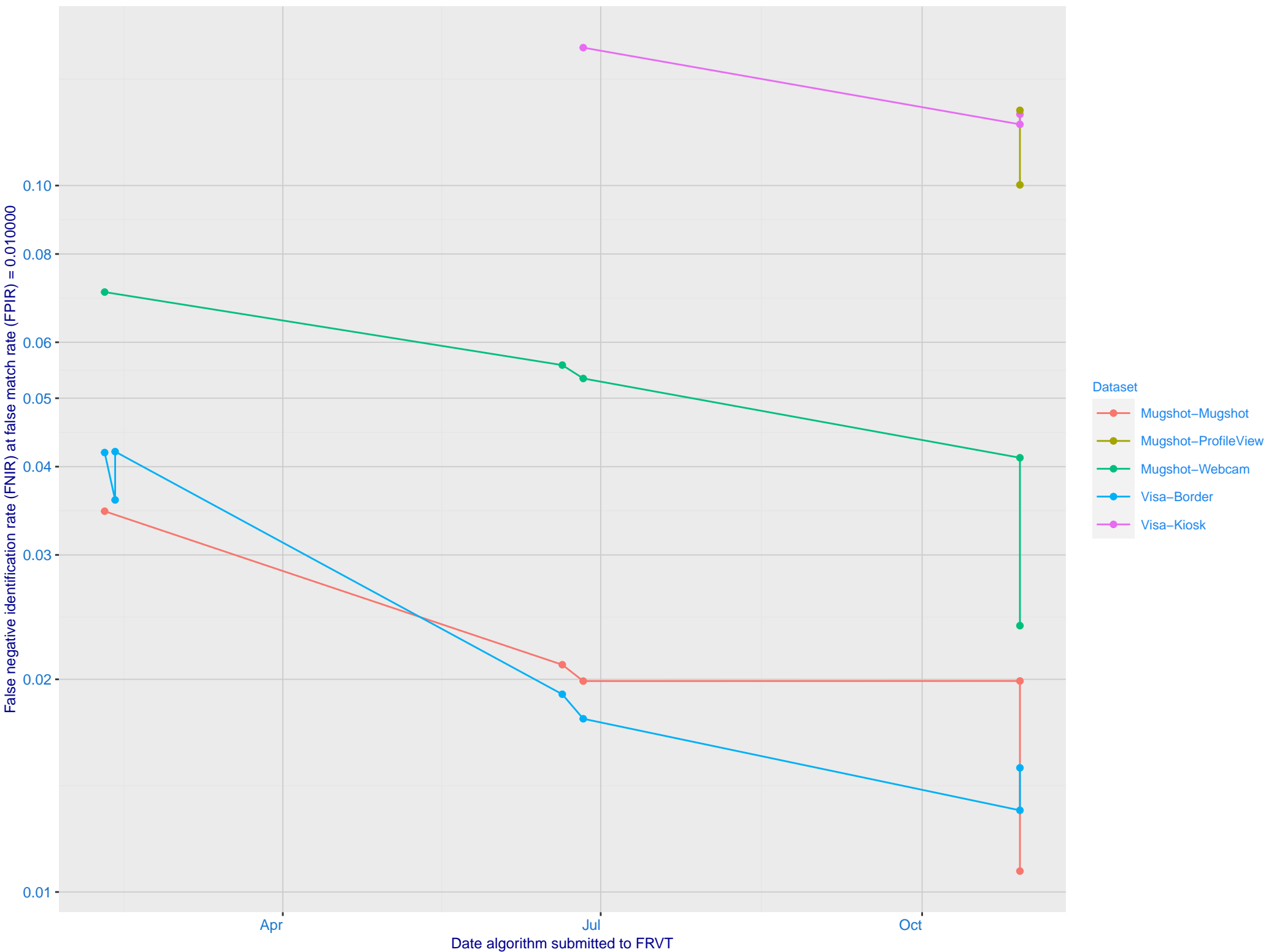
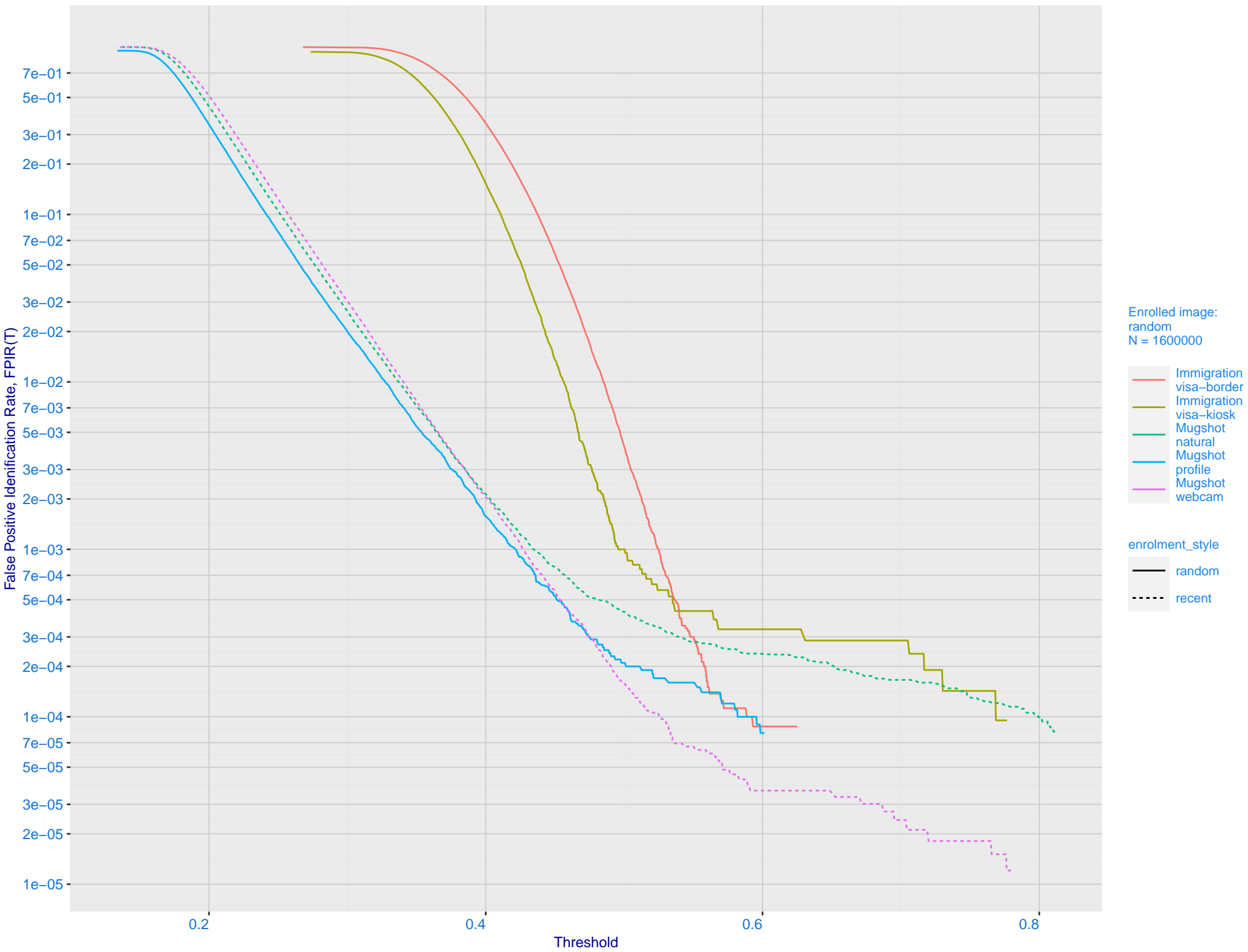D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals

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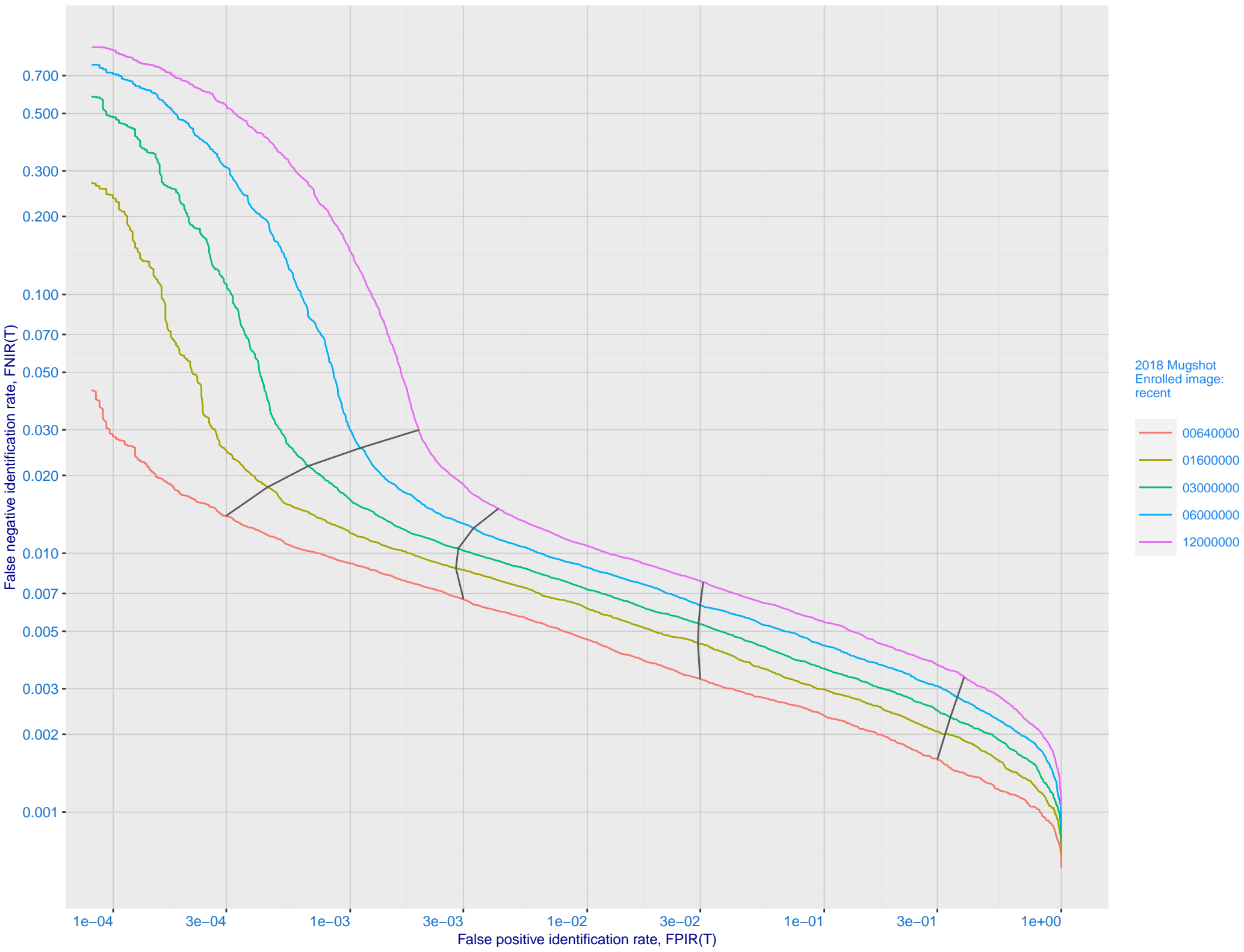
F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate
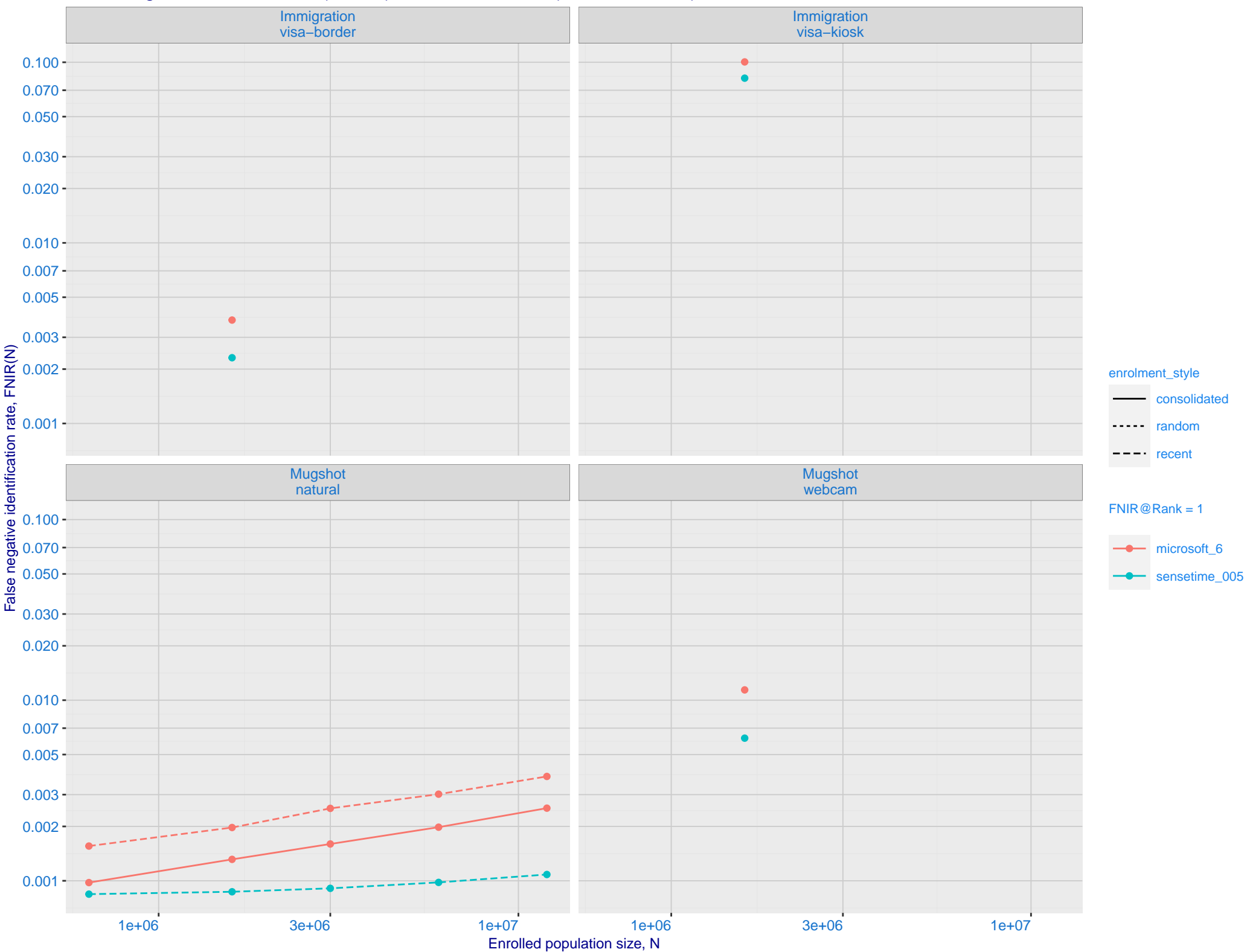
G: FPIR dependence on T by probe type for N = 1600000 subjects

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

2018 Mugshot
Enrolled image:
recent

— 00640000
— 01600000
— 03000000
— 06000000
— 12000000

False negative identification rate, FNIR(T)

False positive identification rate, FPIR(T)

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

L: Investigational mode: FNIR(1600000, R, 0) by probe type
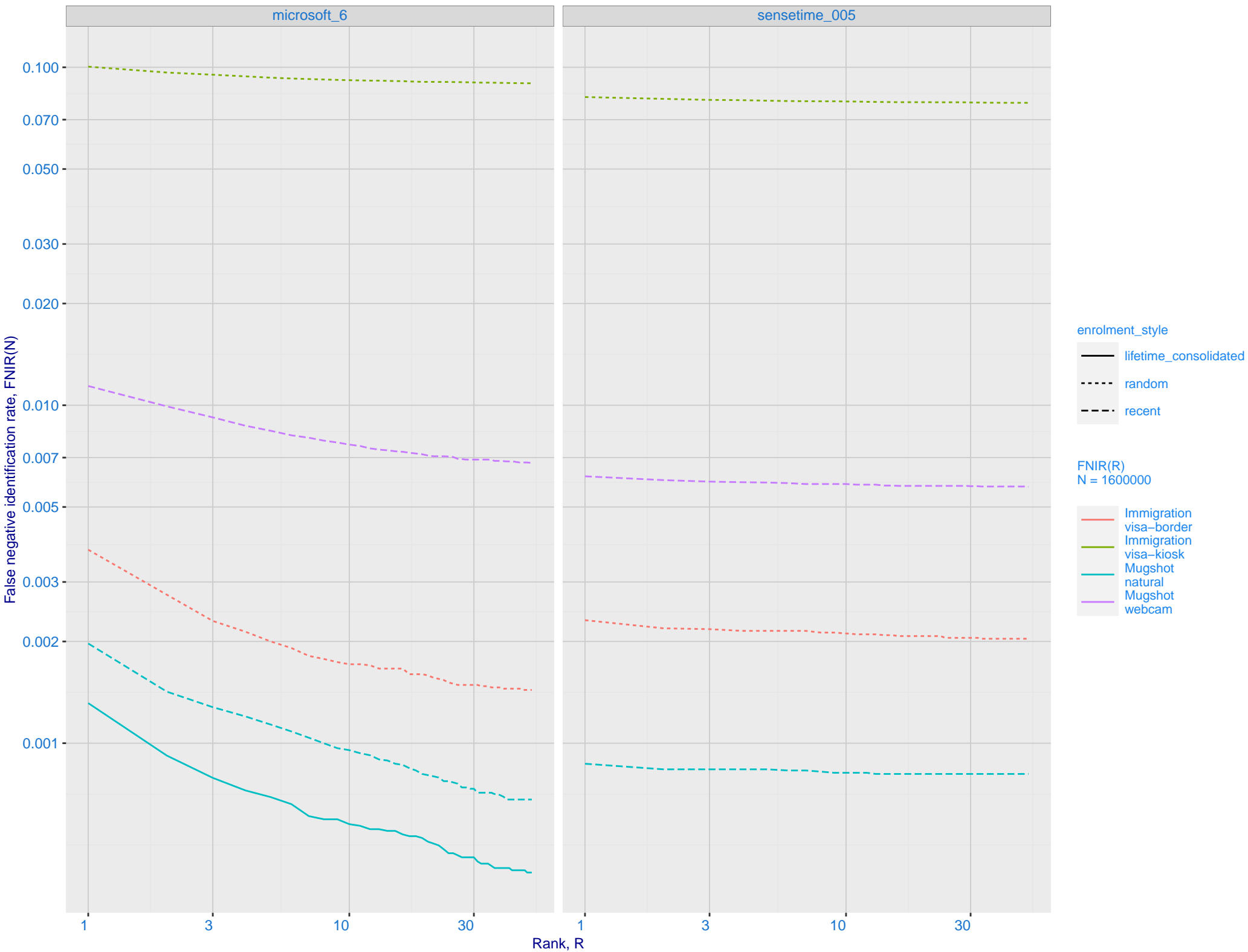
M: Template duration; search duration vs. N. The blue and pink ribbon covers 95 percent of observed measurements. The template generation time is independent of N. The log and power–law models are fit to the first two (N,T) observations
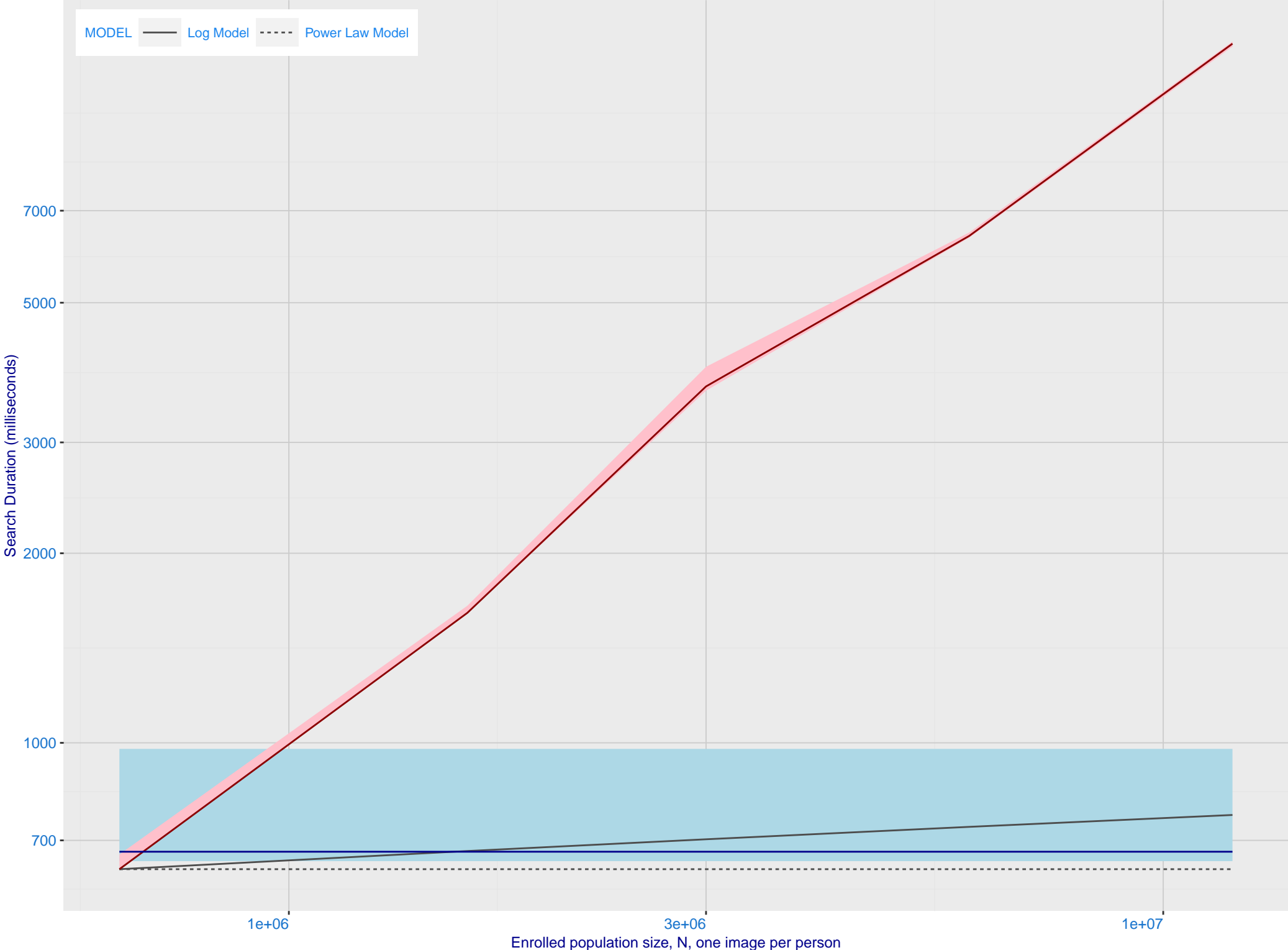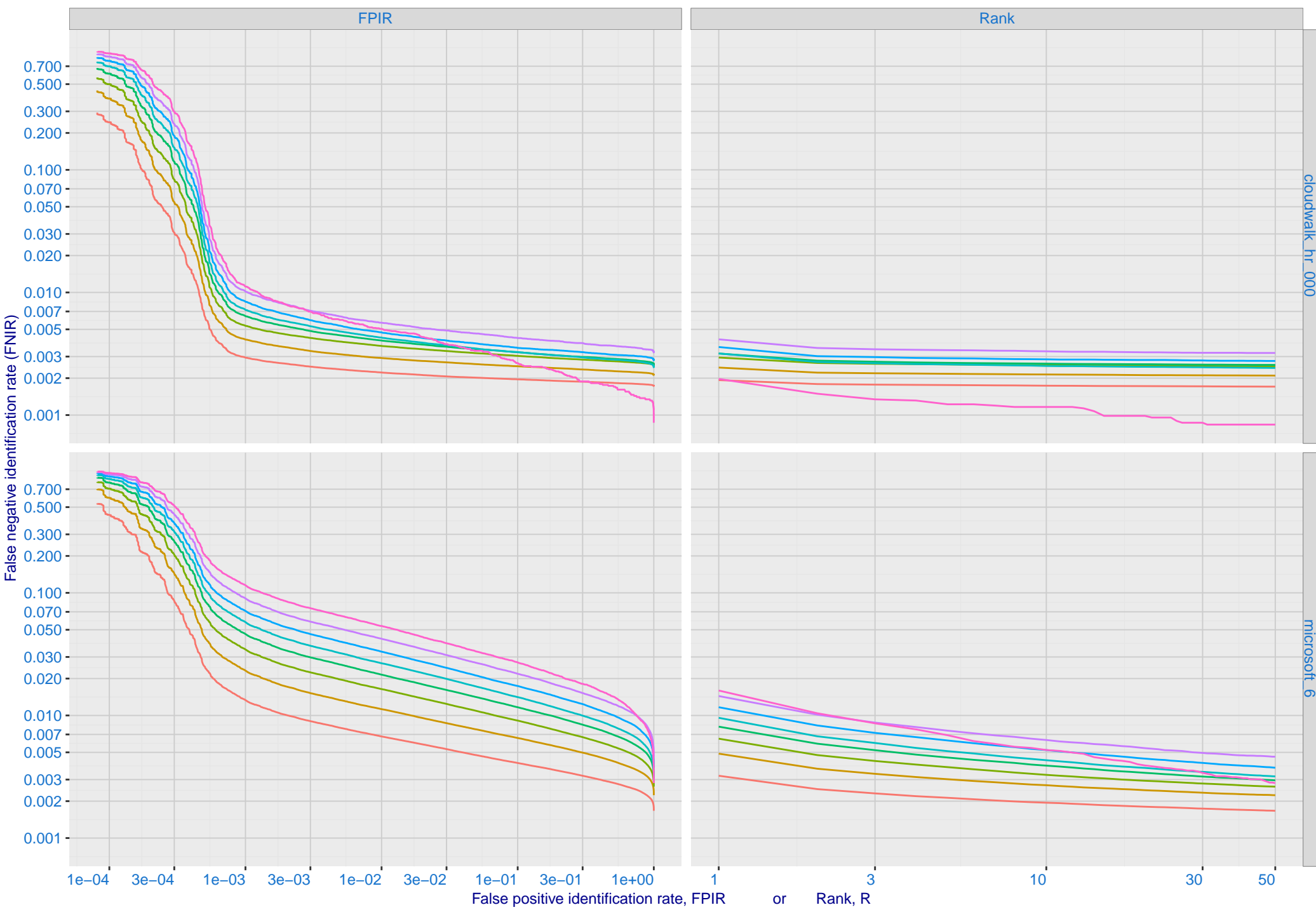
N: Solo–Twin and Twin–Twin similarity scores

Gallery: Twin A; Probe: Twin A or B; Type of Twin
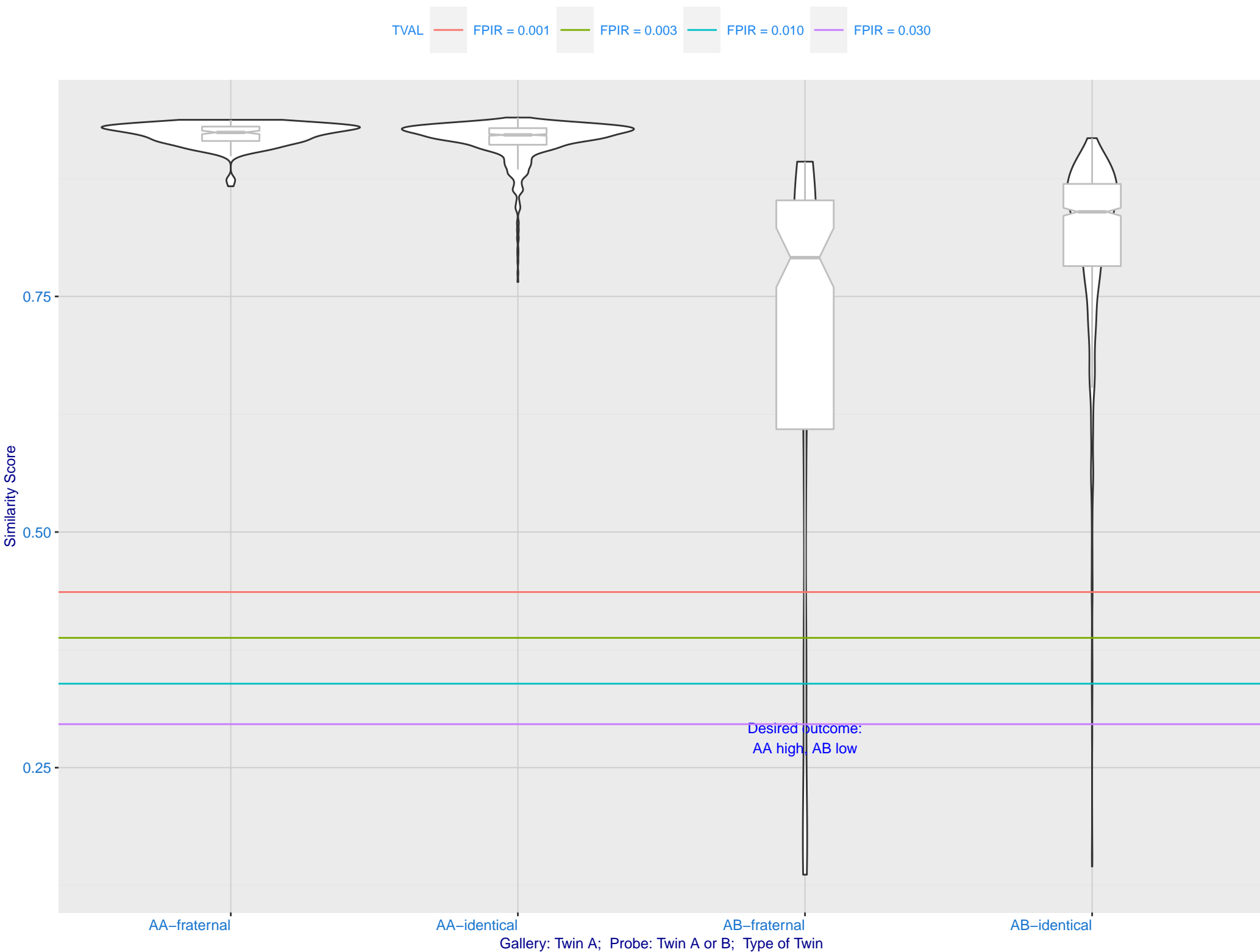
Q: Identification FNIR(N, T, L+1) and Investigational FNIR(N, 0, R) under ageing

Dataset: 2018 Mugshot   N = 3068801   (00,02] (04,06] (08,10] (12,14]
(02,04] (06,08] (10,12] (14,18]

R: Decline of genuine scores with ageing, with some eventually dropping below typical thresholds shown by the horizontal lines