A: Datasheet

Algorithm: hik_5

Developer: Hikvision Research Institute

Submission Date: 2018_10_29

Template size: 1408 bytes

Template time (2.5 percentile): 607 msec

Template time (median): 608 msec

Template time (97.5 percentile): 657 msec

Investigation:

Frontal mugshot ranking 78 (out of 265) –– FNIR(1600000, 0, 1) = 0.0046 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 53 (out of 227) –– FNIR(1600000, 0, 1) = 0.0165 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 54 (out of 196) –– FNIR(1600000, 0, 1) = 0.5351 vs. lowest 0.0591 from sensetime_005

Immigration visa–border ranking 49 (out of 148) –– FNIR(1600000, 0, 1) = 0.0069 vs. lowest 0.0013 from visionlabs_010

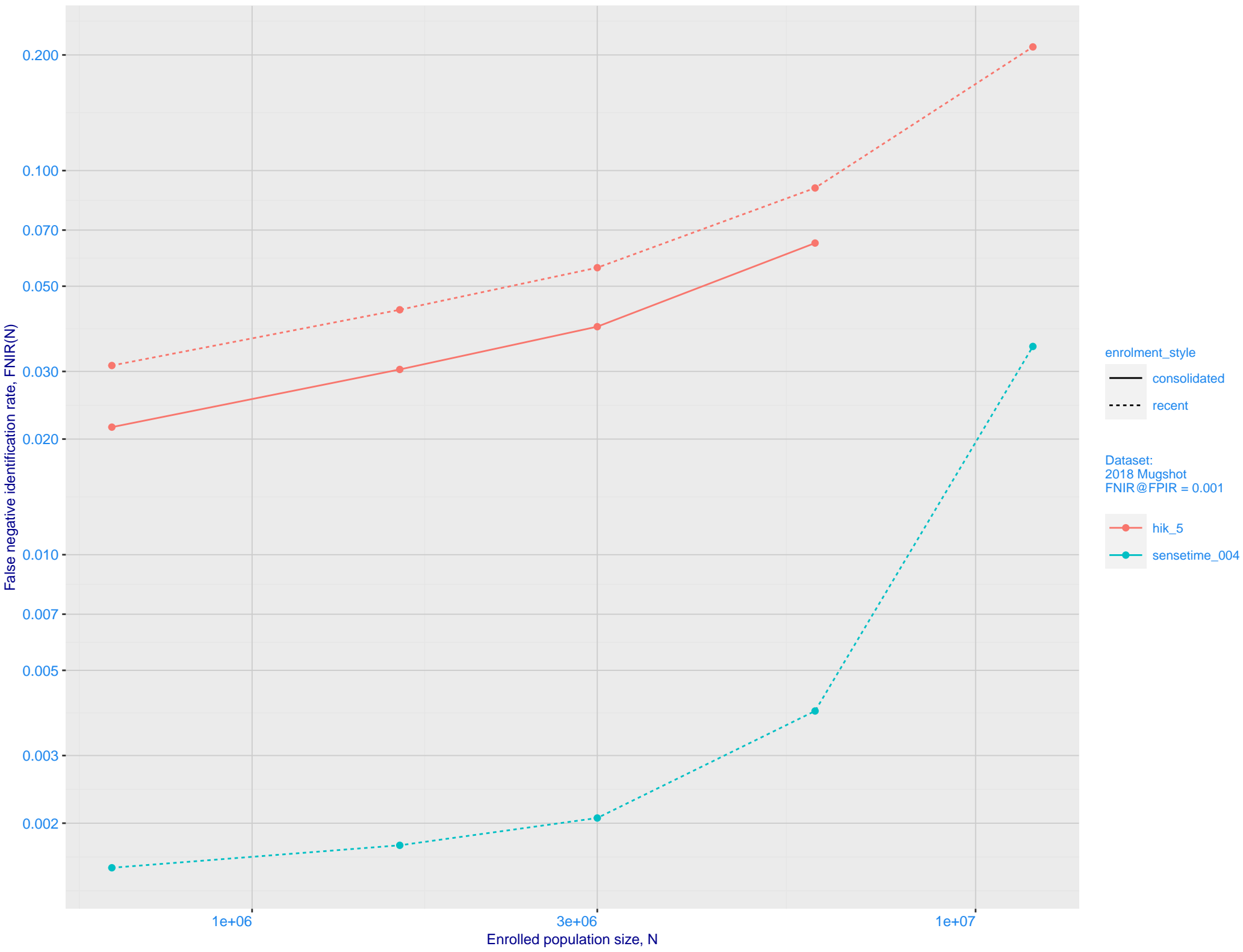Immigration visa–kiosk ranking 38 (out of 145) –– FNIR(1600000, 0, 1) = 0.1109 vs. lowest 0.0568 from hr_000

Identification:

Frontal mugshot ranking 67 (out of 265) –– FNIR(1600000, T, L+1) = 0.0434, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004
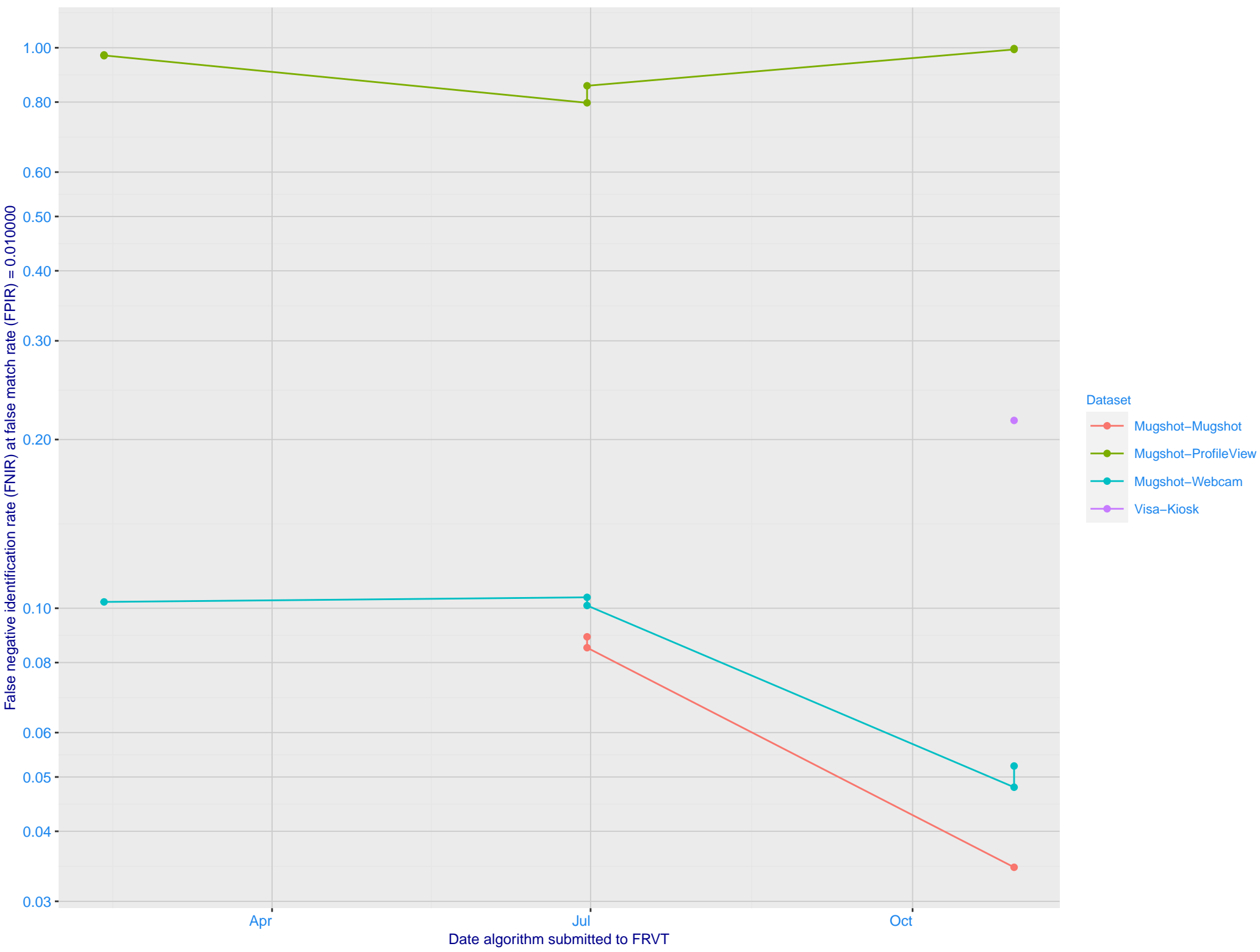
Mugshot webcam ranking 44 (out of 225) –– FNIR(1600000, T, L+1) = 0.0766, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 146 (out of 195) –– FNIR(1600000, T, L+1) = 0.9994, FPIR=0.001000 vs. lowest 0.1331 from hr_000
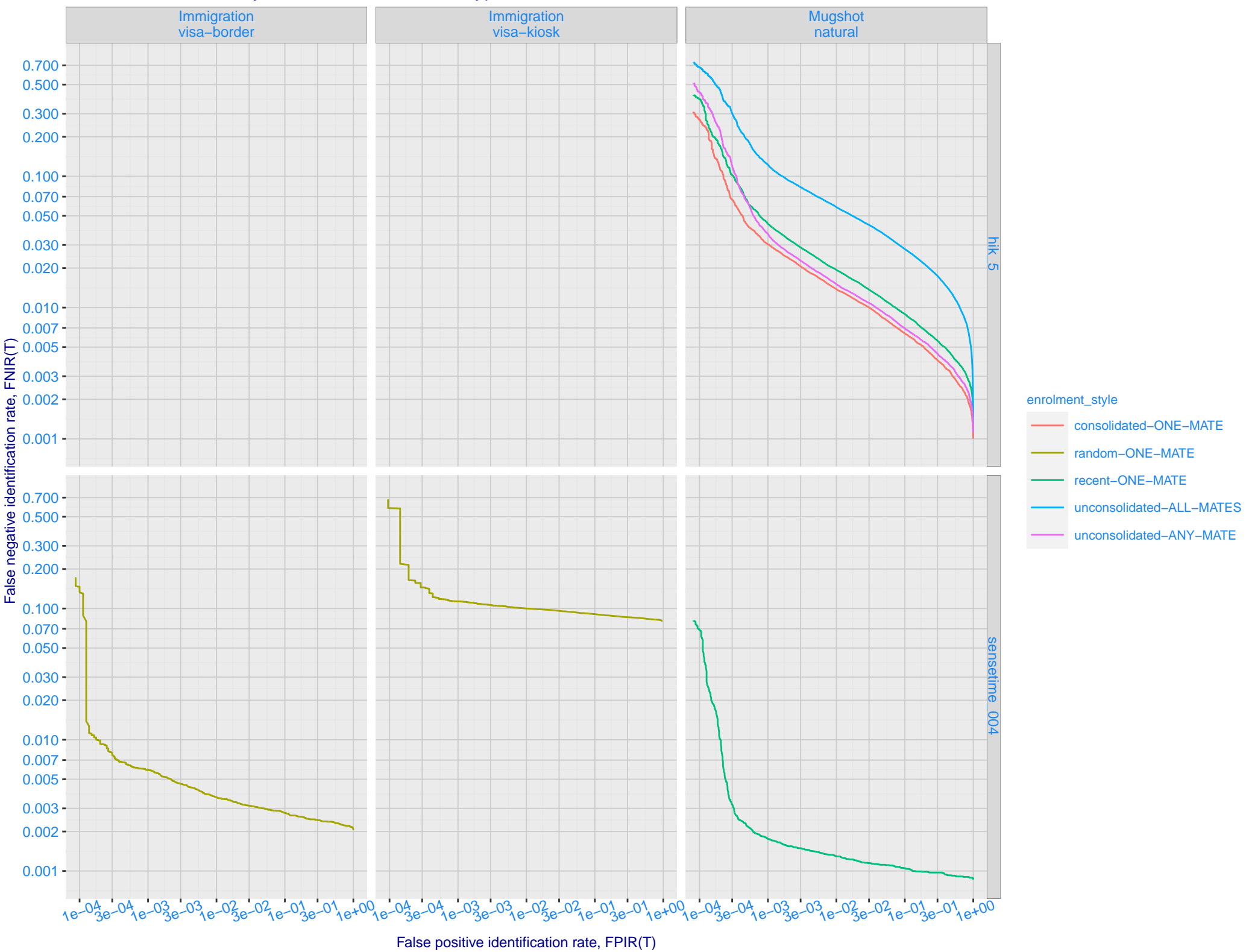
B: Mugshot natural images, identification mode: FNIR(N, L+1, T) vs. most accurate (sensetime_004)

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

Date algorithm submitted to FRVT

False negative identification rate (FNIR) at false match rate (FPIR) = 0.010000

Dataset
- Mugshot–Mugshot
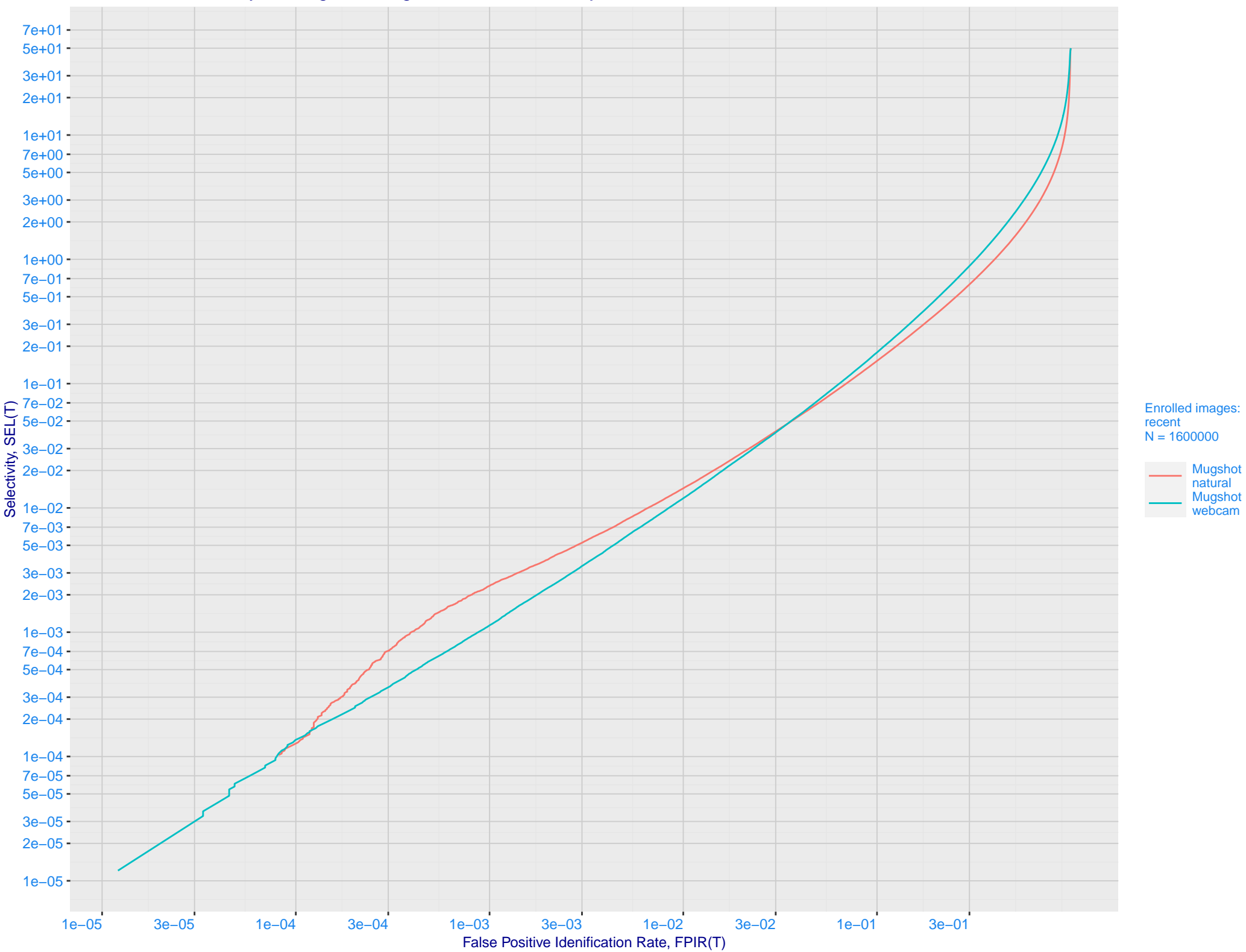- Mugshot–ProfileView
- Mugshot–Webcam
- Visa–Kiosk

D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals
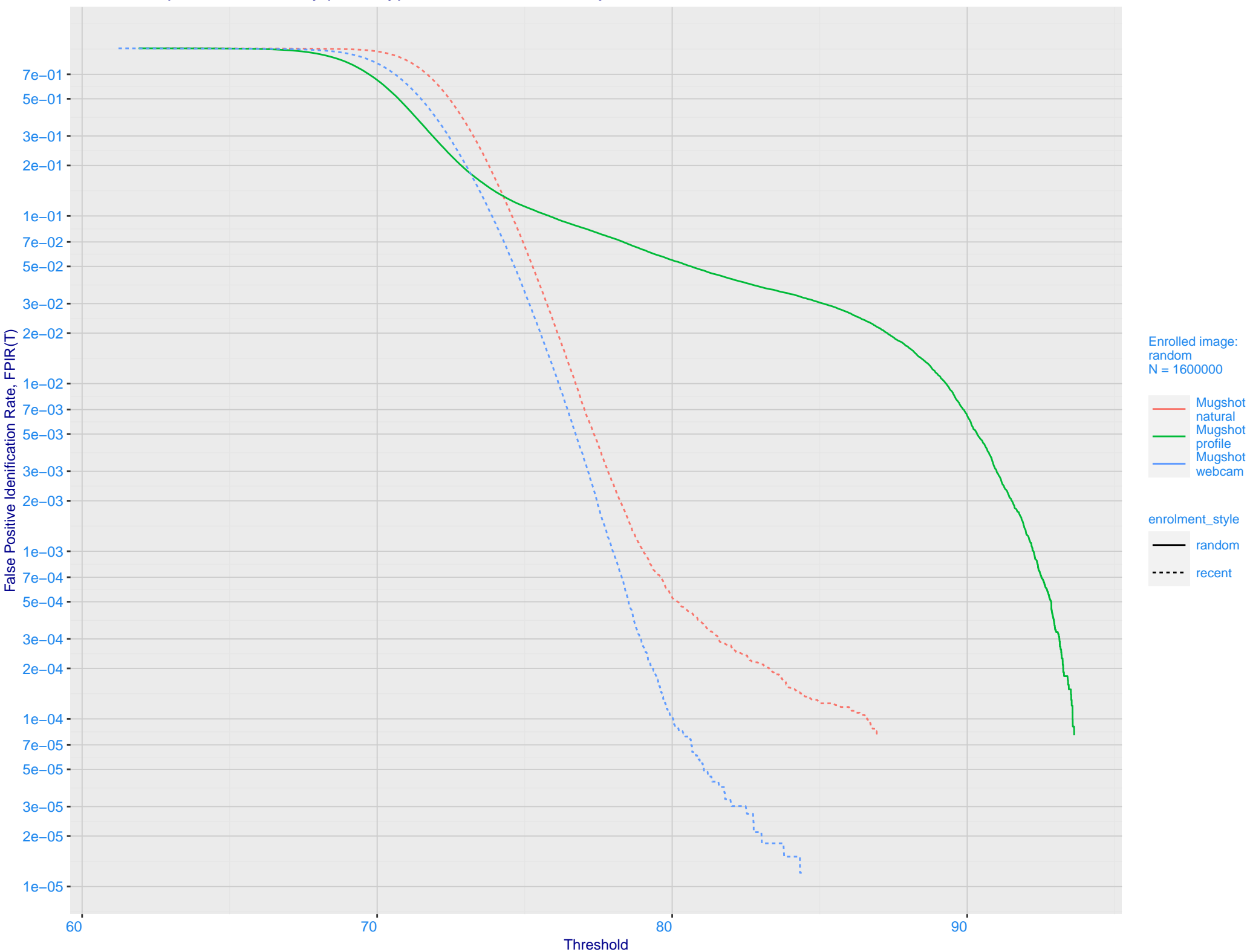
E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images
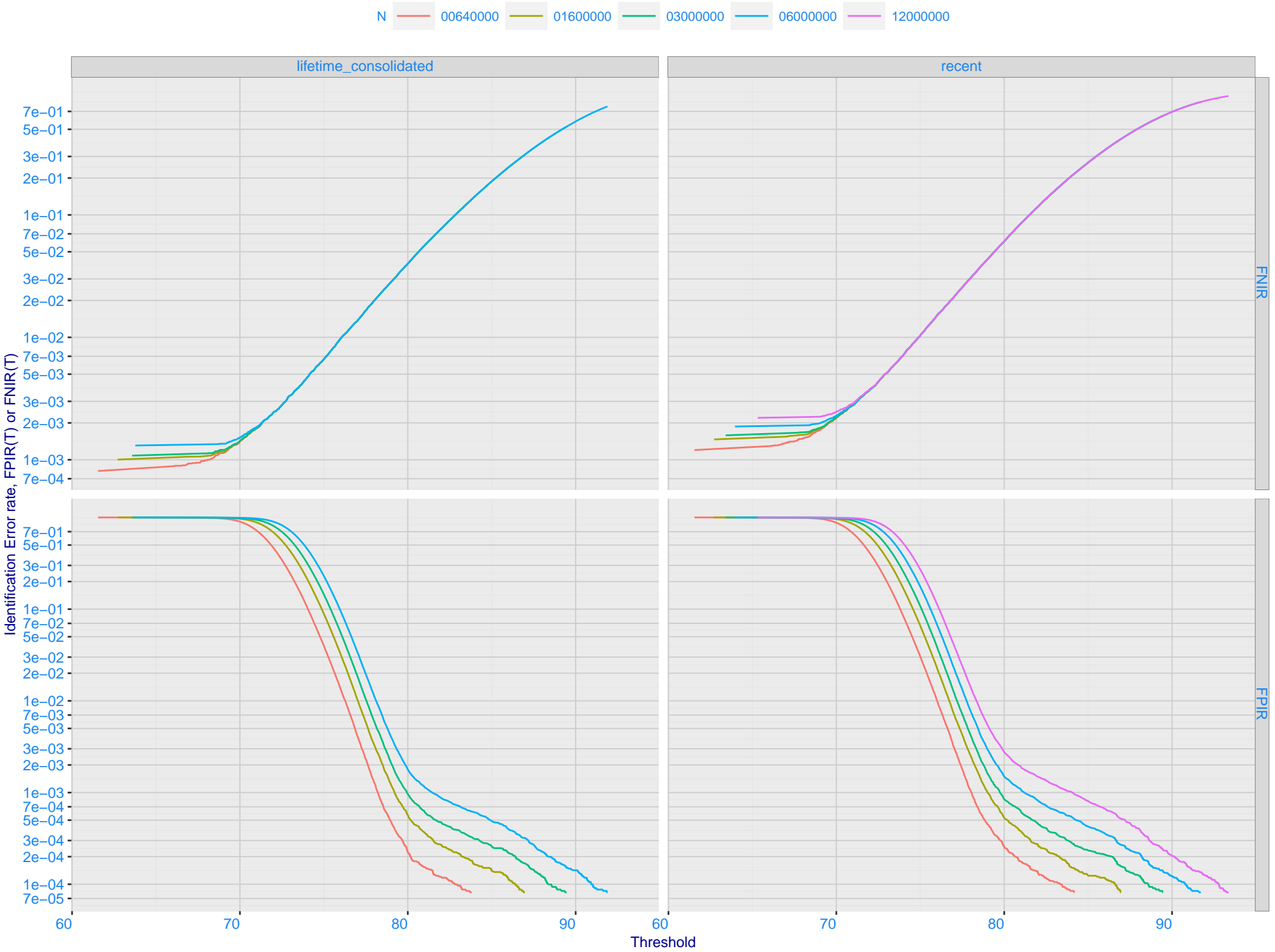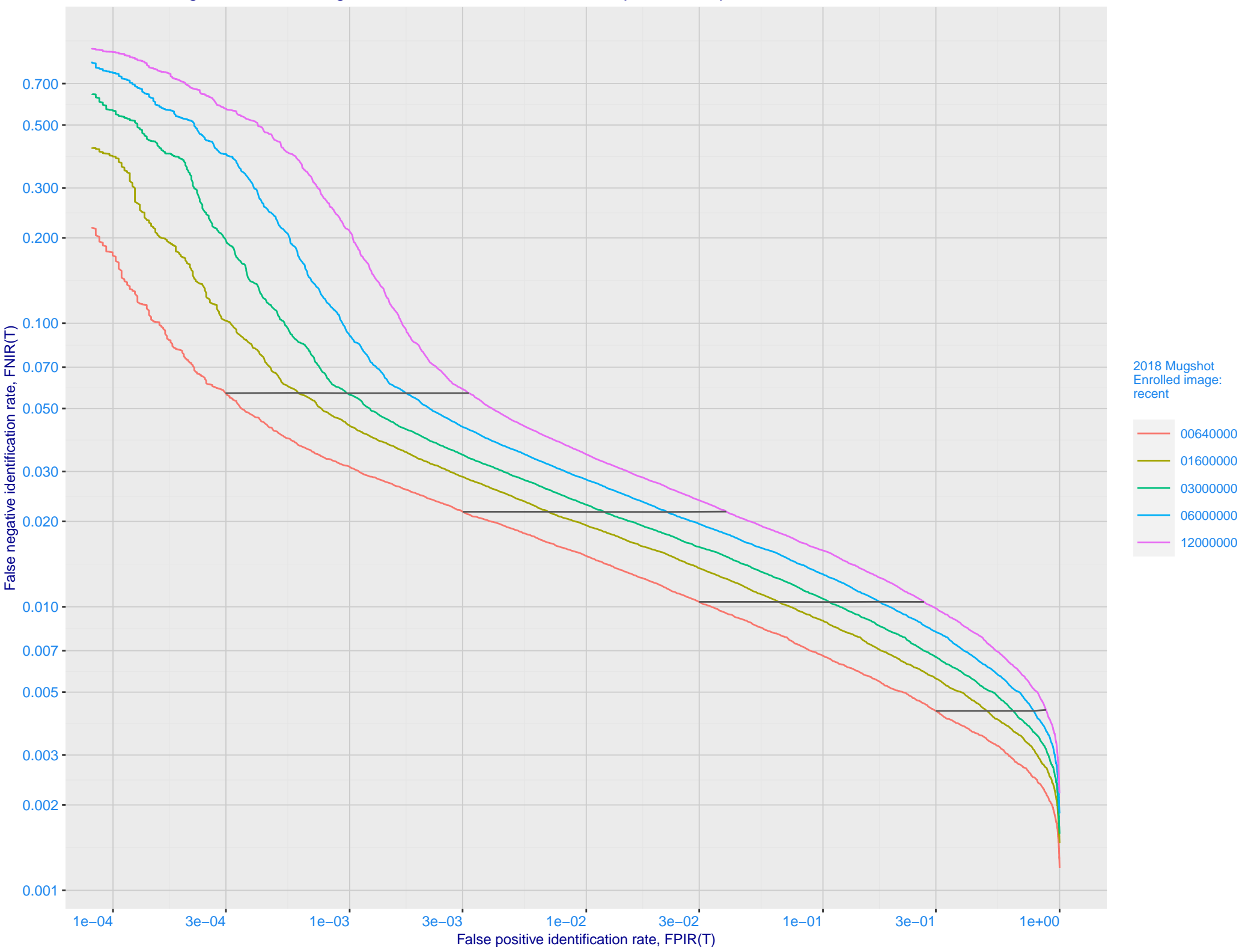
F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate

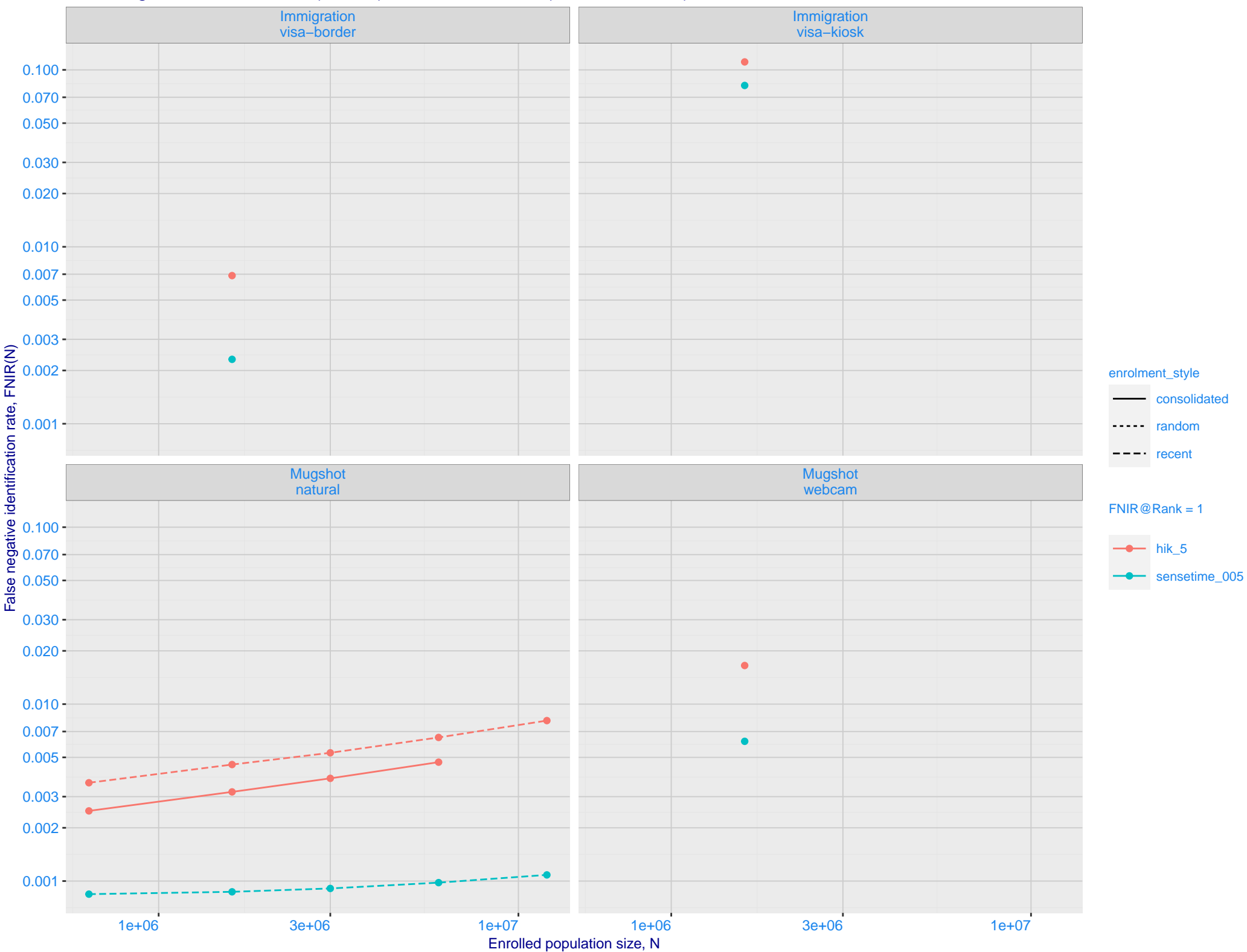G: FPIR dependence on T by probe type for N = 1600000 subjects

H: DET for Mugshot natural images and various N. Links connect points of equal threshold.
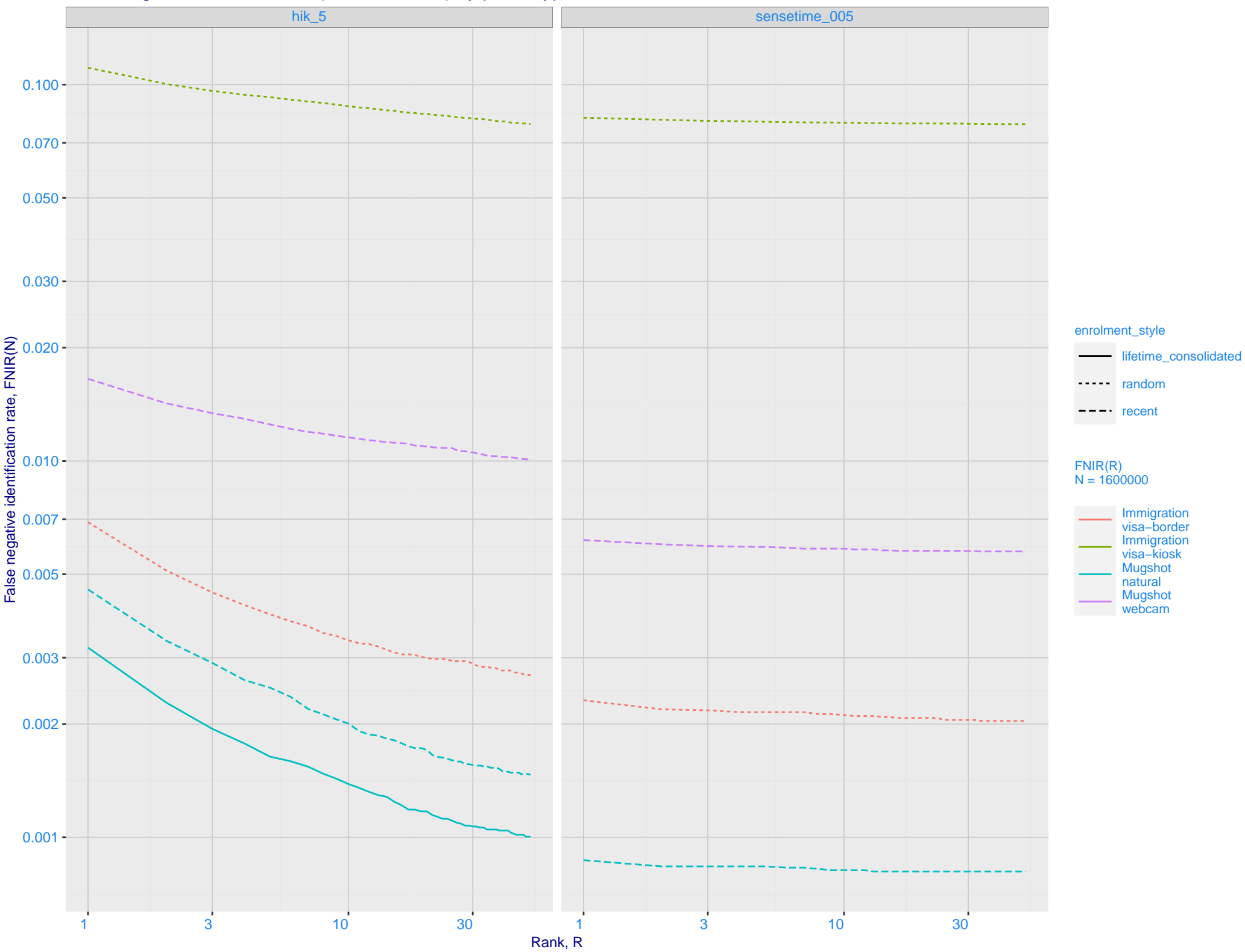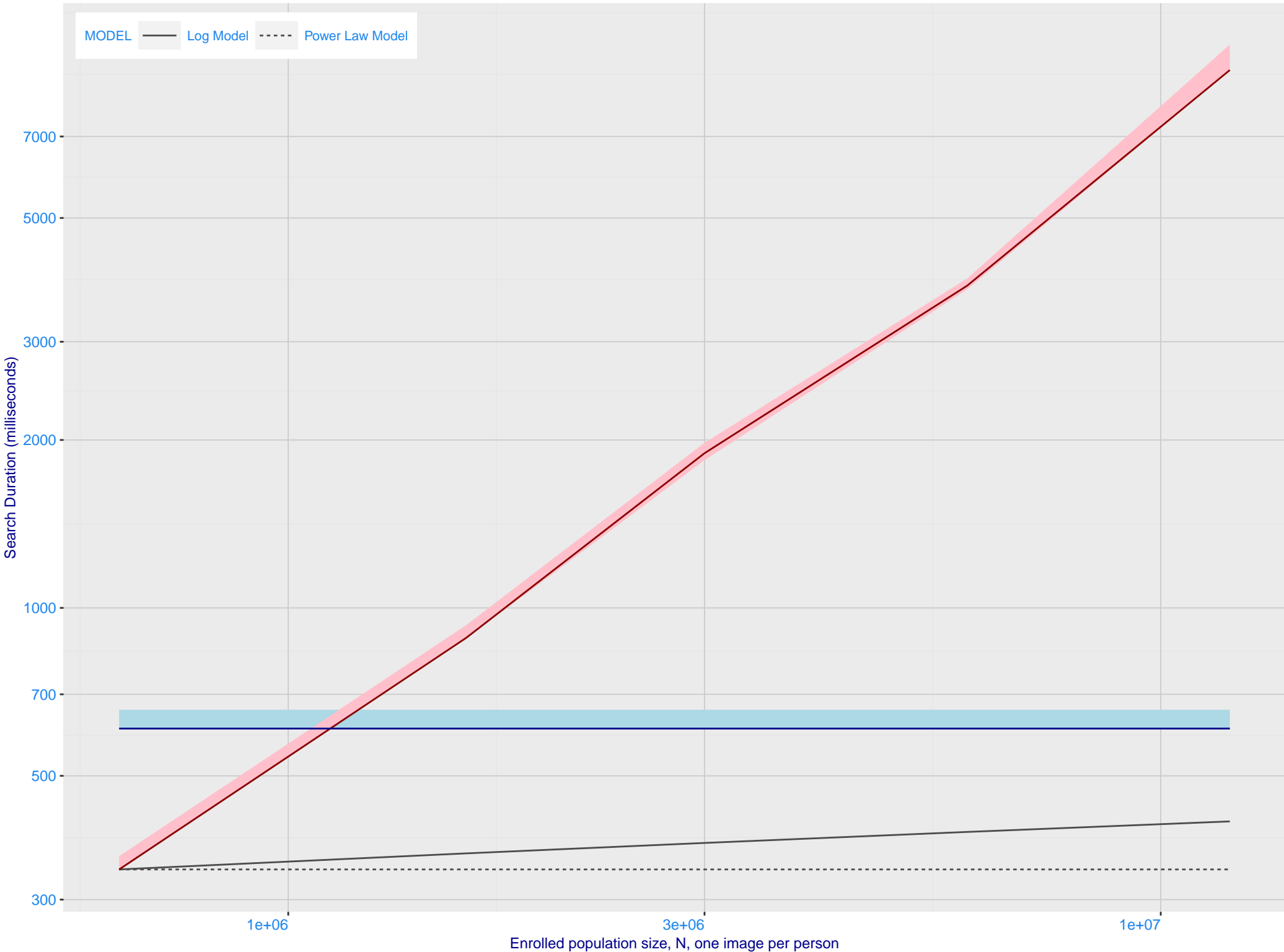
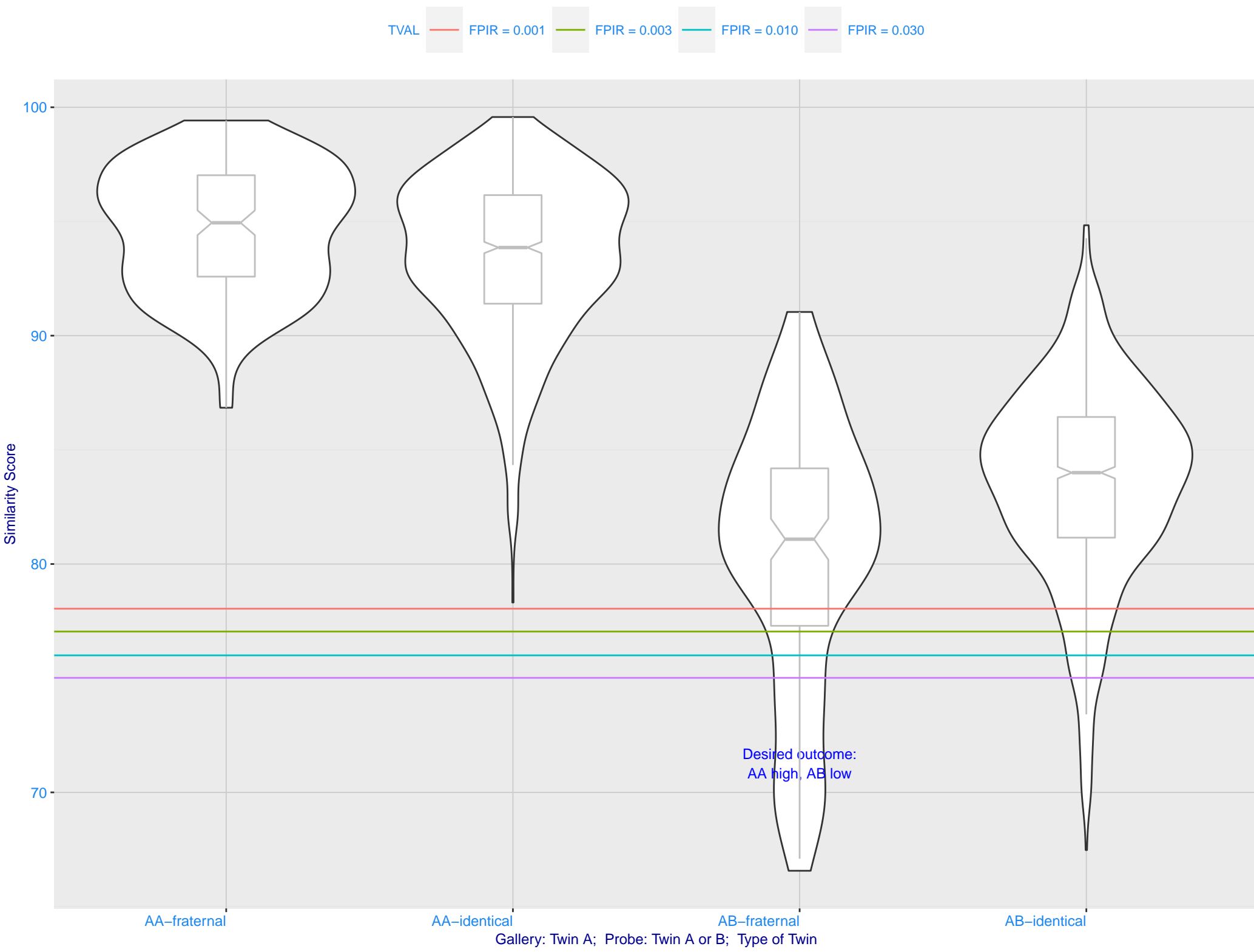I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005)

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

Solo–Twin and Twin–Twin similarity scores

TVAL — FPIR = 0.001 — FPIR = 0.003 — FPIR = 0.010 — FPIR = 0.030

Similarity Score

100

90

80

70

Desired outcome:
AA high, AB low

AA–fraternal   AA–identical   AB–fraternal   AB–identical

Gallery: Twin A; Probe: Twin A or B; Type of Twin

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