A: Datasheet

Algorithm: cognitec_3

Developer: Cognitec Systems GmbH

Submission Date: 2018_10_30

Template size: 2052 bytes

Template time (2.5 percentile): 266 msec

Template time (median): 297 msec

Template time (97.5 percentile): 336 msec

Investigation:

Frontal mugshot ranking 106 (out of 279) –– FNIR(1600000, 0, 1) = 0.0062 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 111 (out of 241) –– FNIR(1600000, 0, 1) = 0.0245 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 138 (out of 210) –– FNIR(1600000, 0, 1) = 0.9300 vs. lowest 0.0587 from xforwardai_002

Identification:

Frontal mugshot ranking 97 (out of 279) –– FNIR(1600000, T, L+1) = 0.0524, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 126 (out of 236) –– FNIR(1600000, T, L+1) = 0.1623, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 172 (out of 209) –– FNIR(1600000, T, L+1) = 0.9999, FPIR=0.001000 vs. lowest 0.1331 from cloudwalk_hr_000
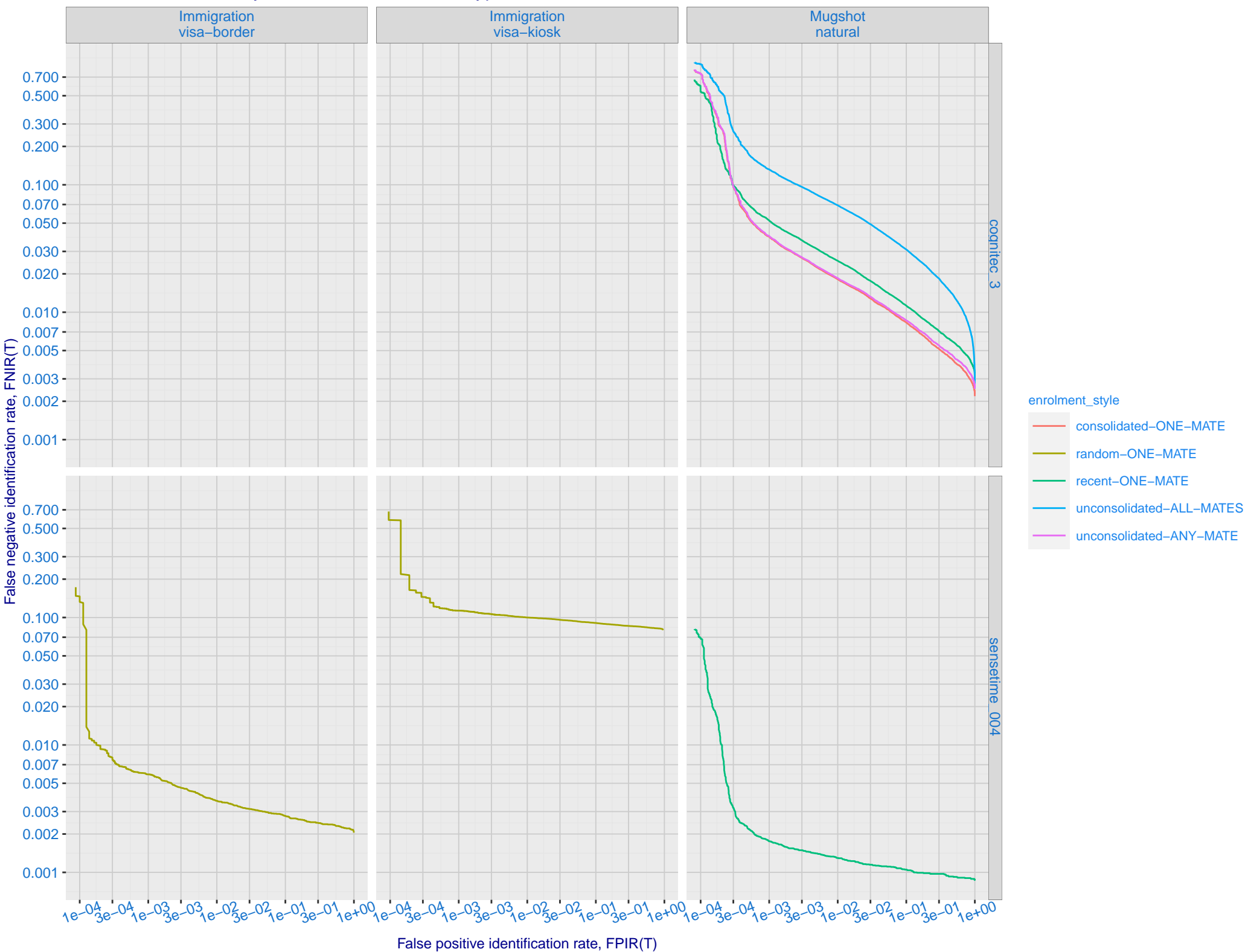
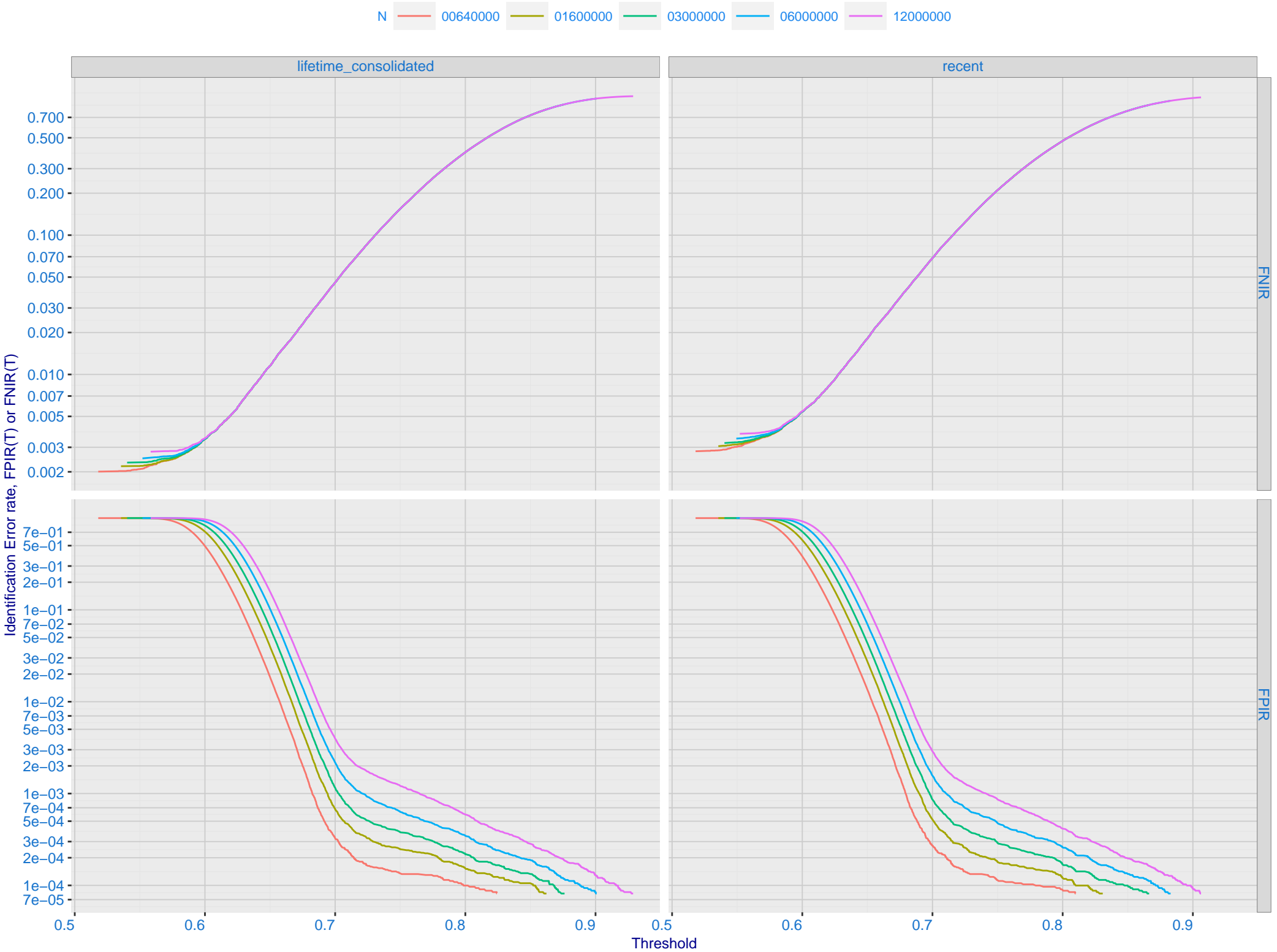B: Mugshot natural images, identification mode: FNIR(N, L+1, T) vs. most accurate (sensetime_004)
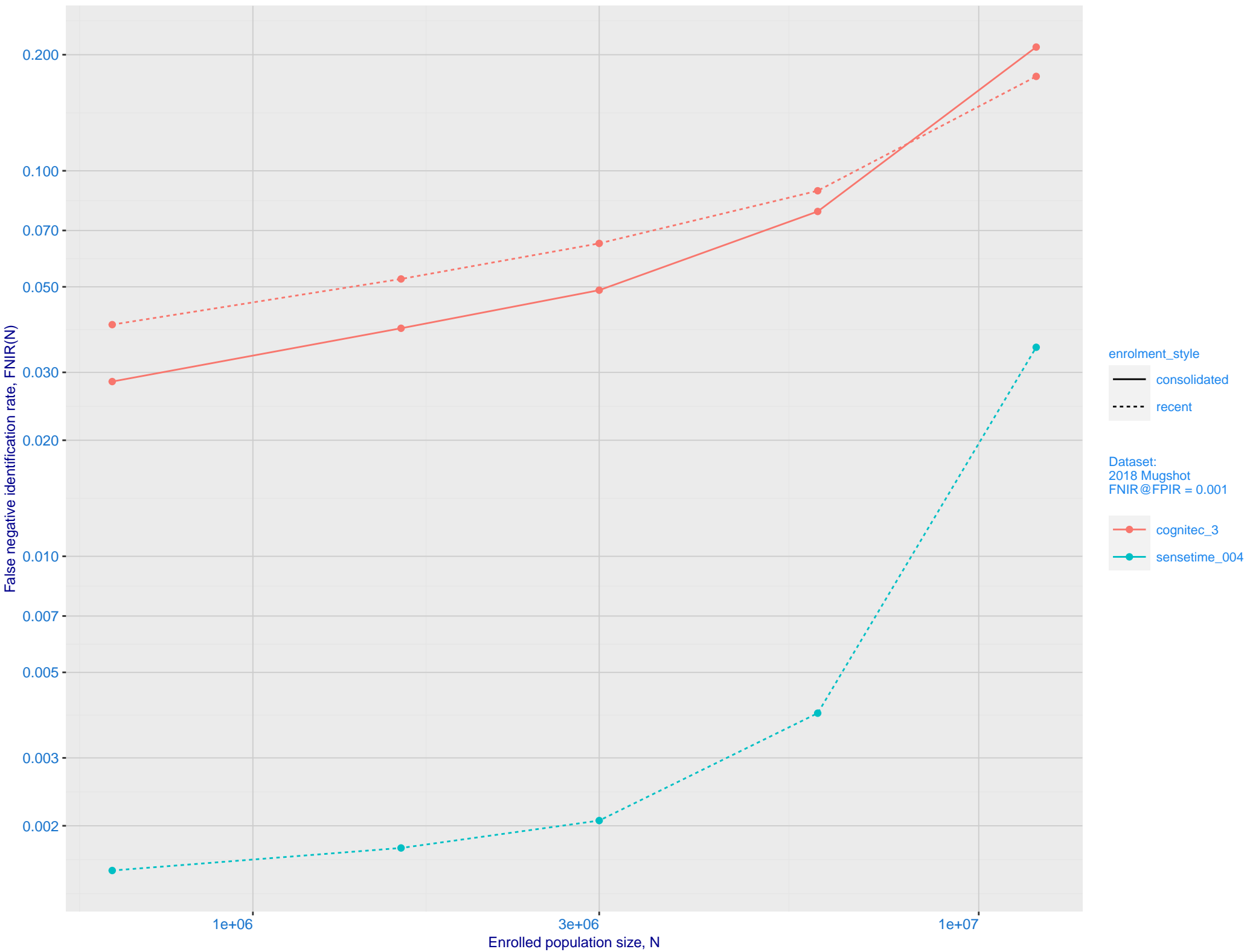
C: Evolution of accuracy for COGNITEC algorithms on three datasets 2018 – present
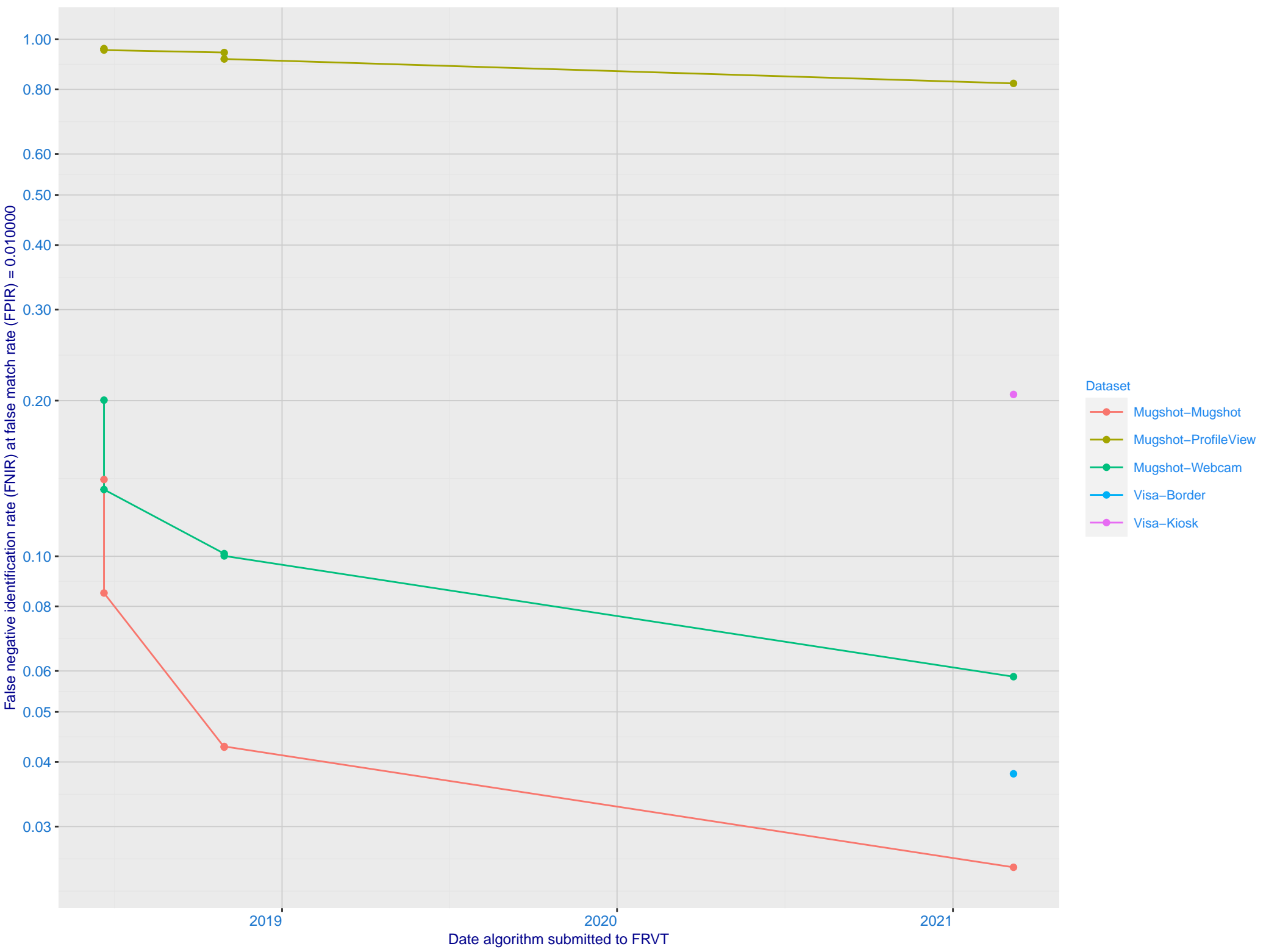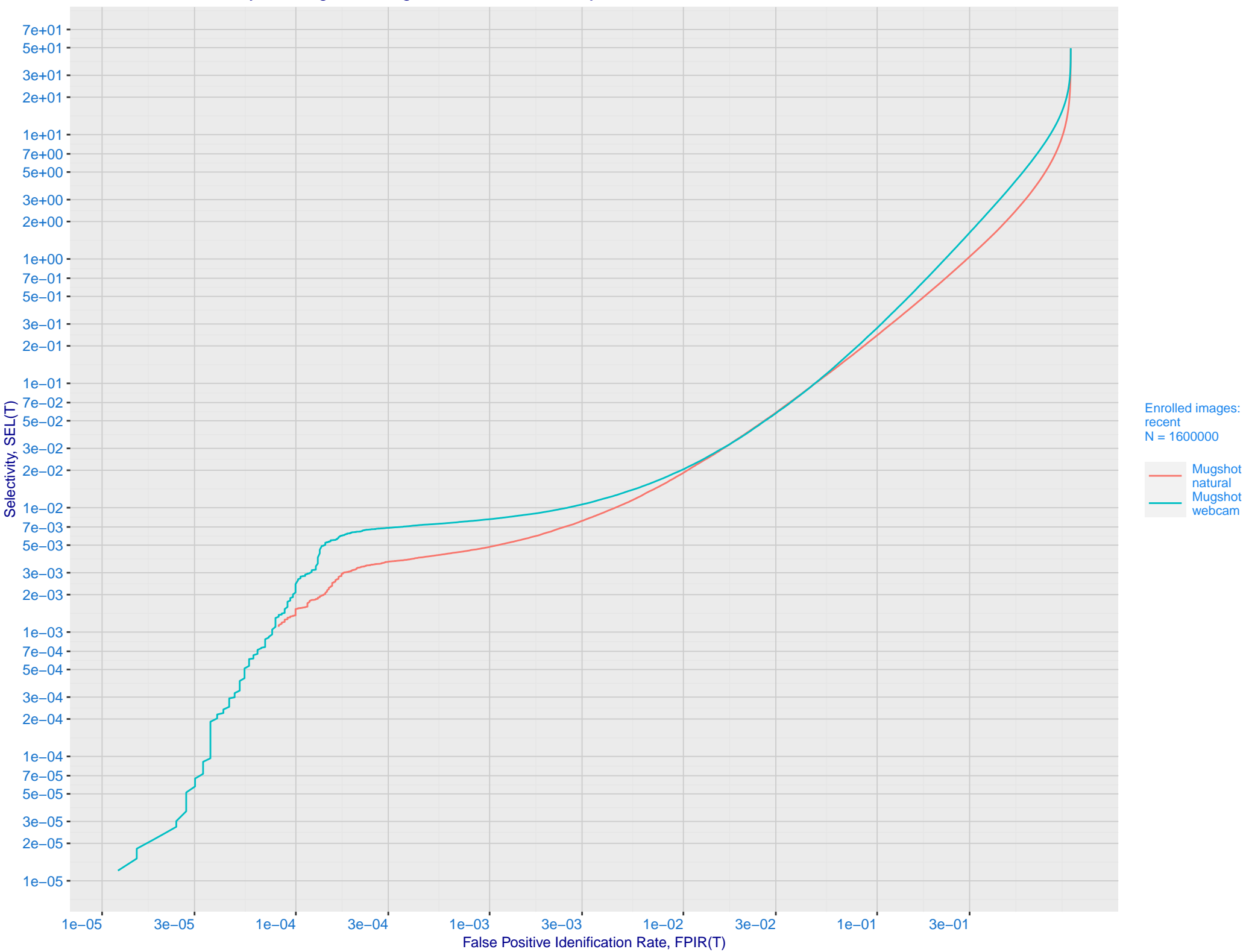
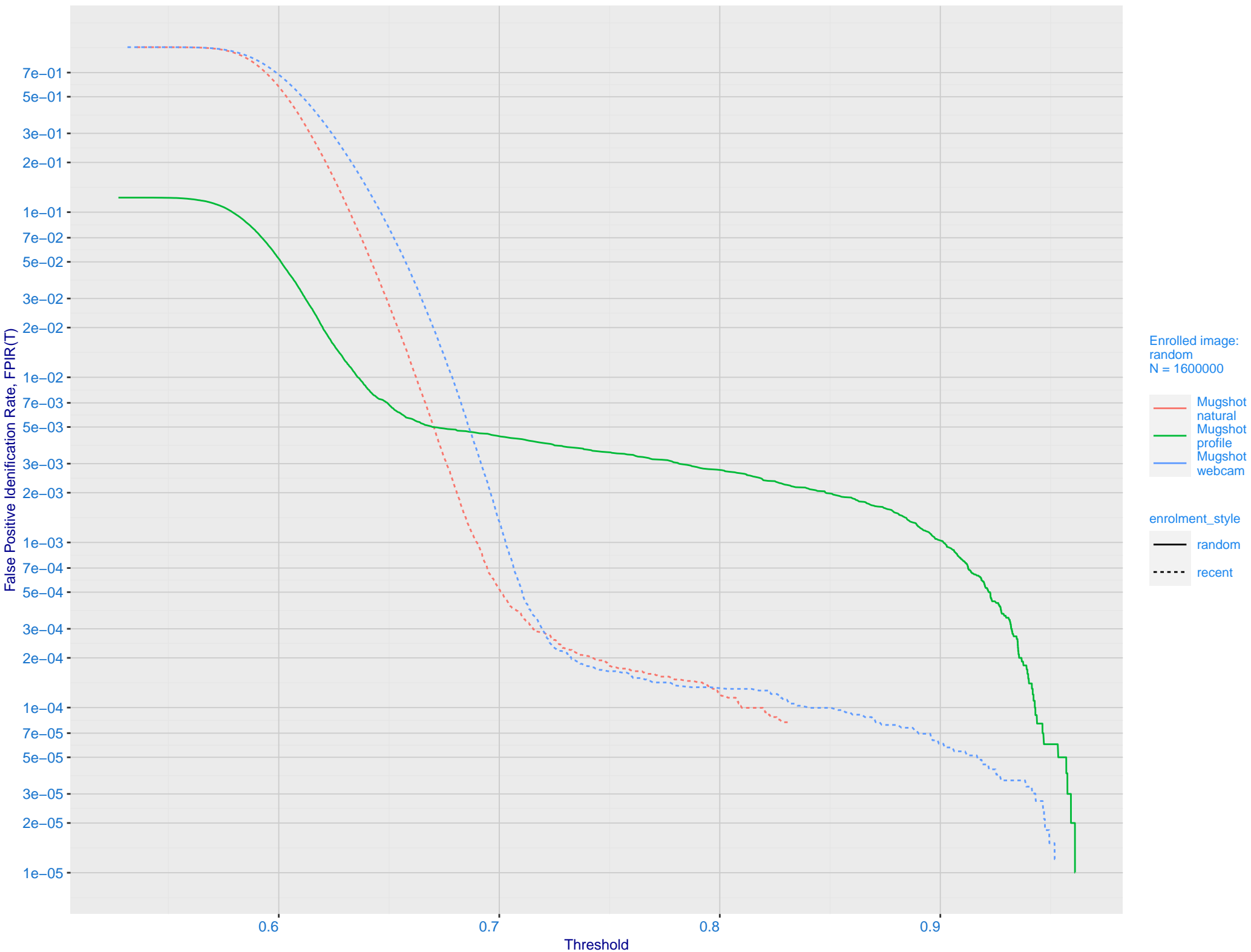D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals

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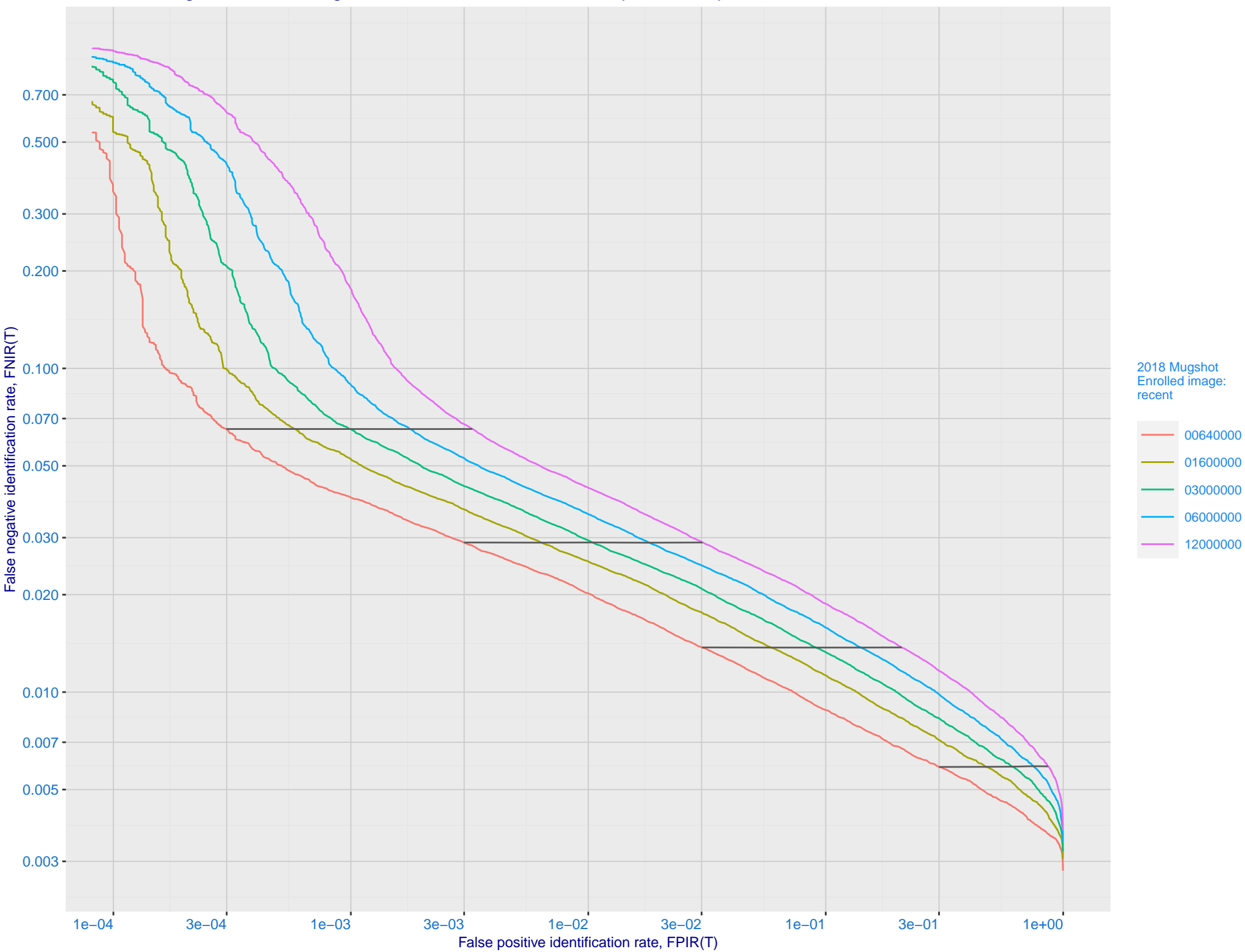
F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate
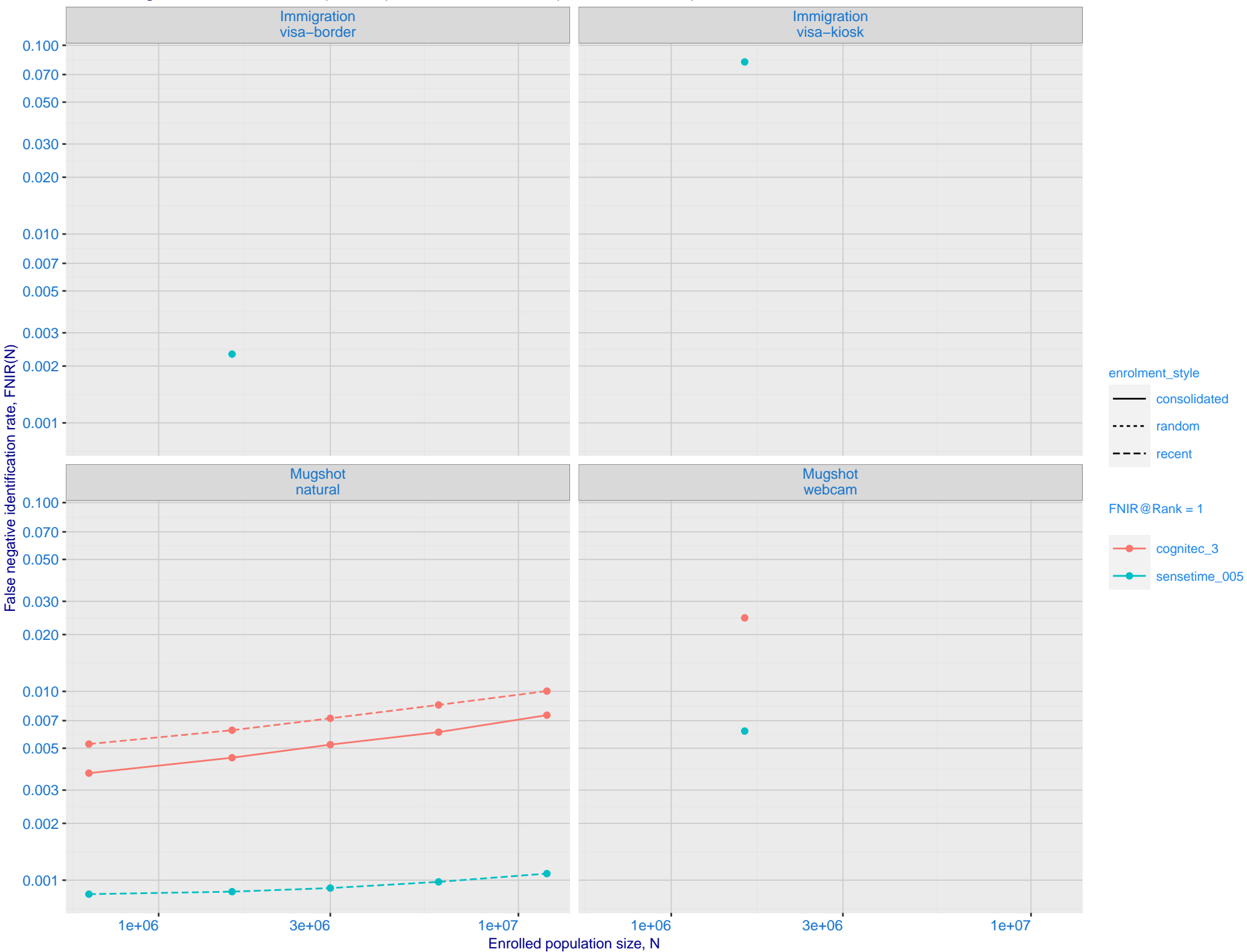
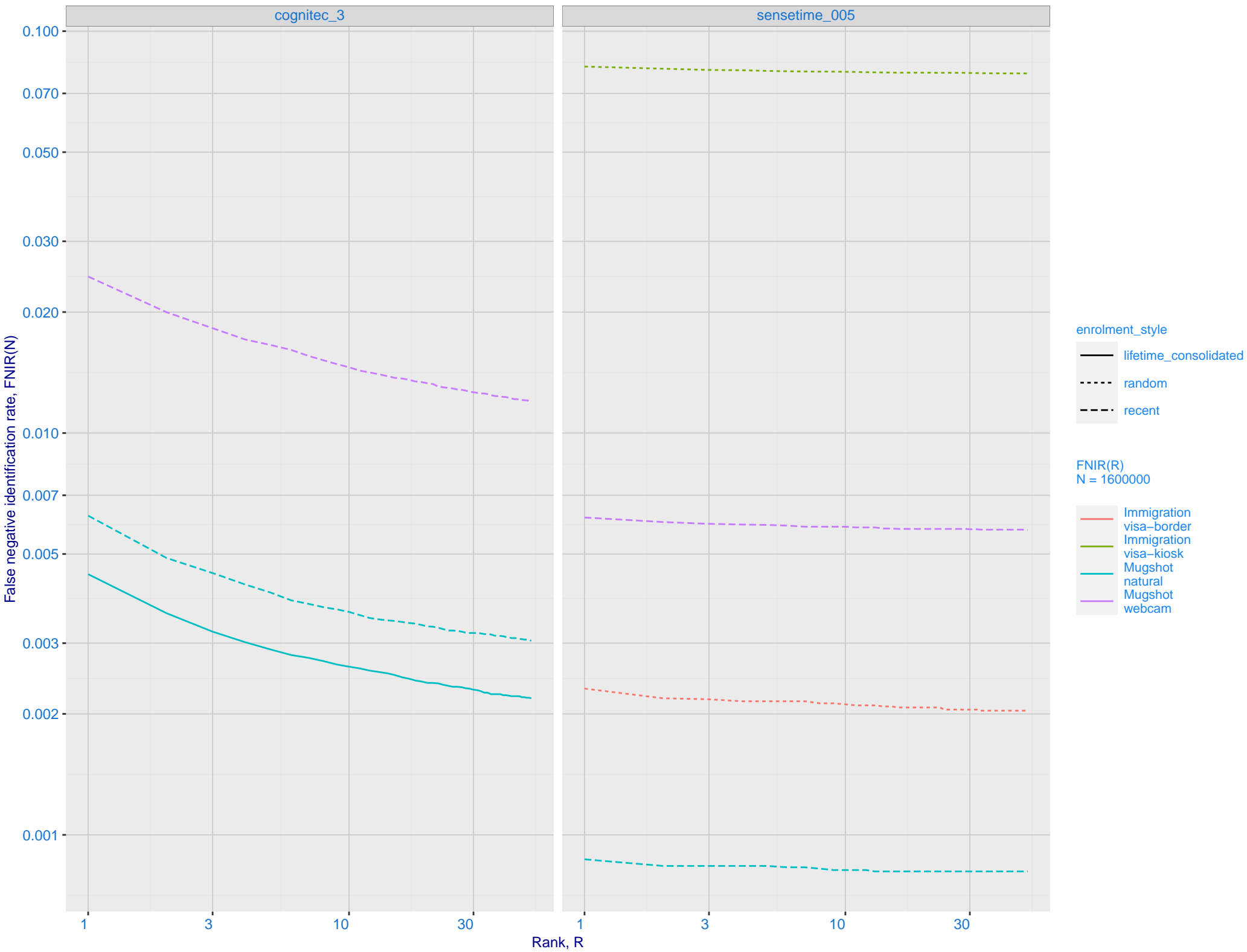G: FPIR dependence on T by probe type for N = 1600000 subjects

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

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

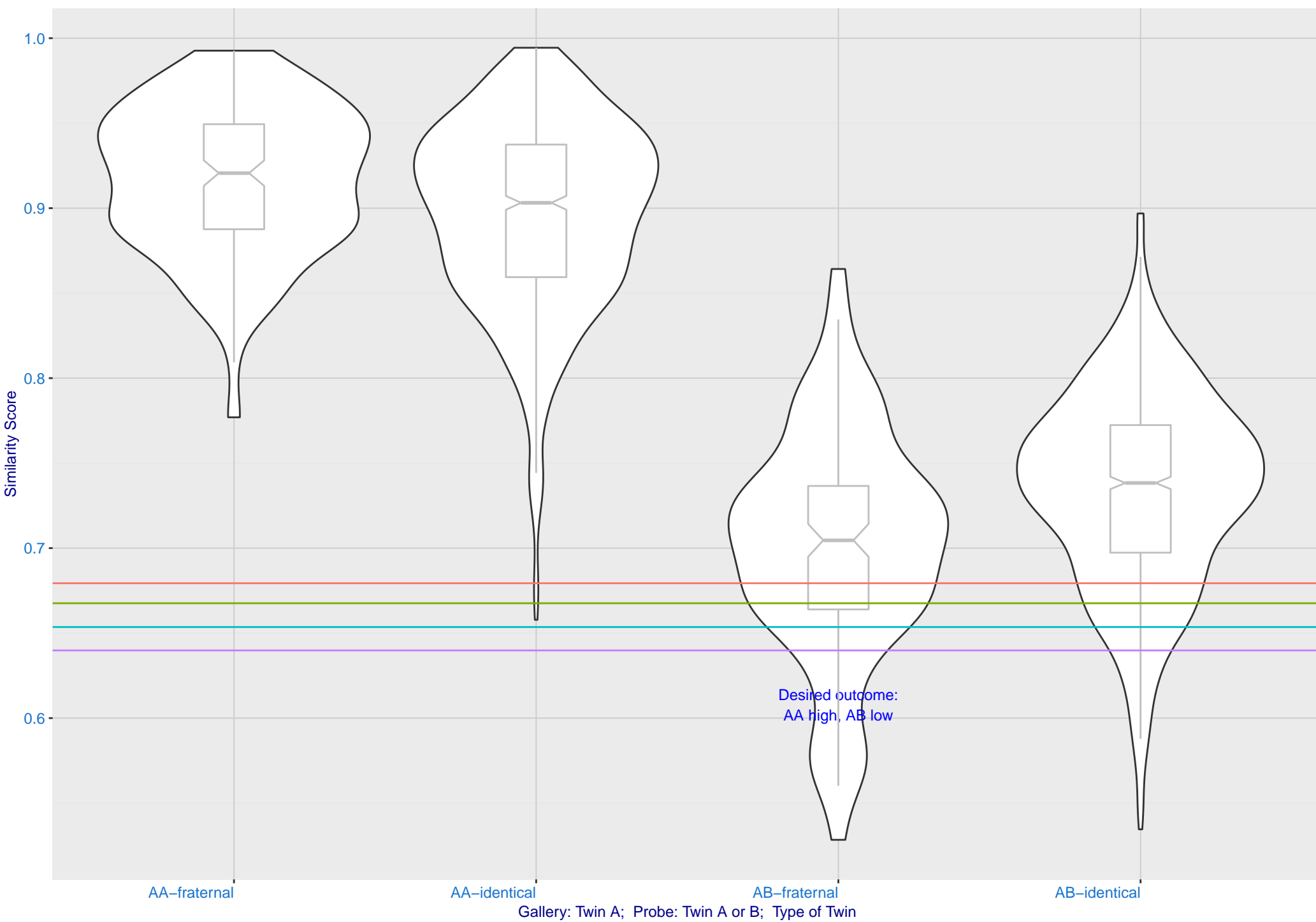L: Investigational mode: FNIR(1600000, R, 0) by probe type

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
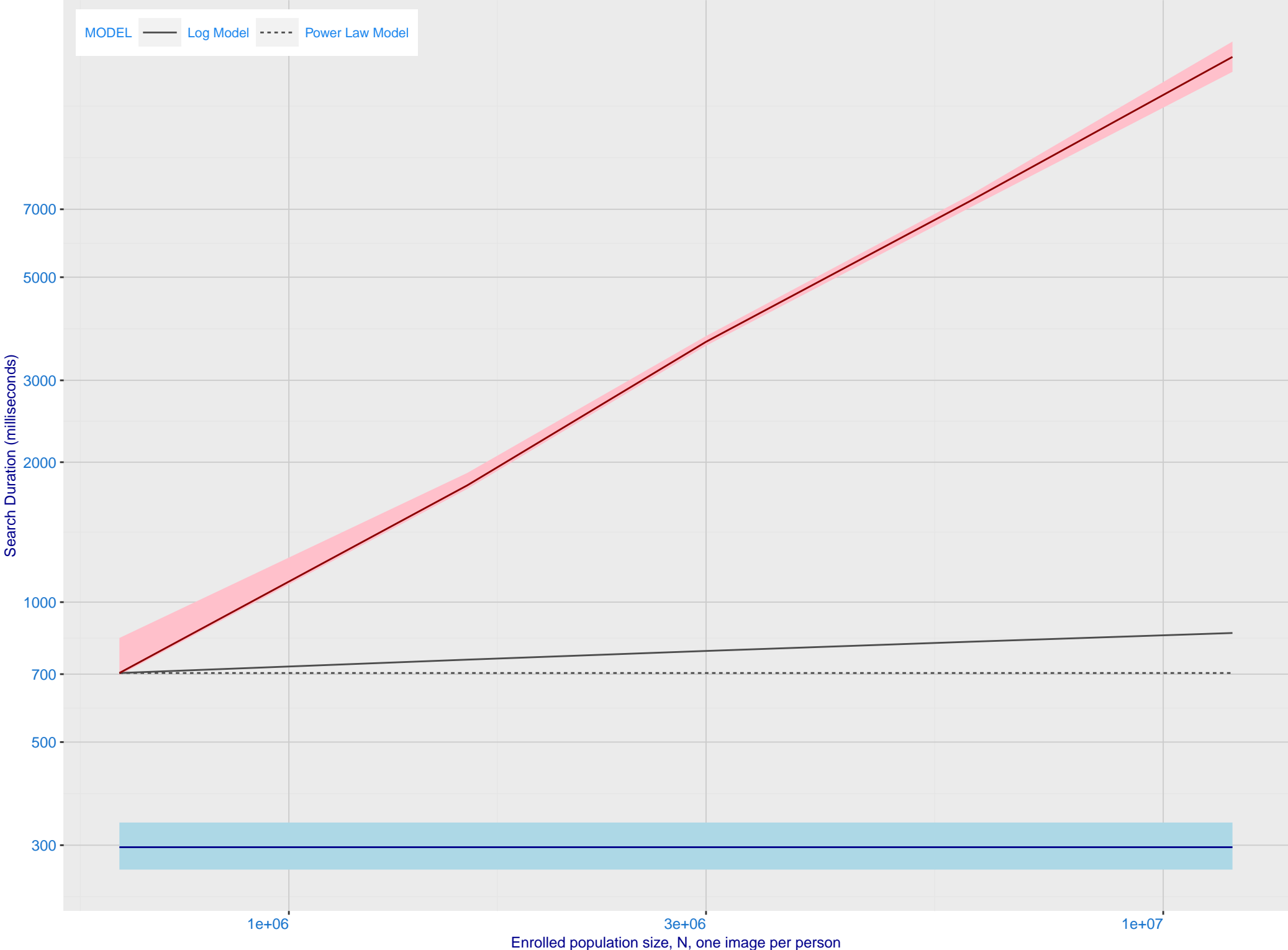
N: Solo−Twin and Twin−Twin similarity scores

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

Similarity Score

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

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

Dataset: 2018 Mugshot   N = 3068801

Legend: (00,02], (02,04], (04,06], (06,08], (08,10], (10,12], (12,14], (14,18]
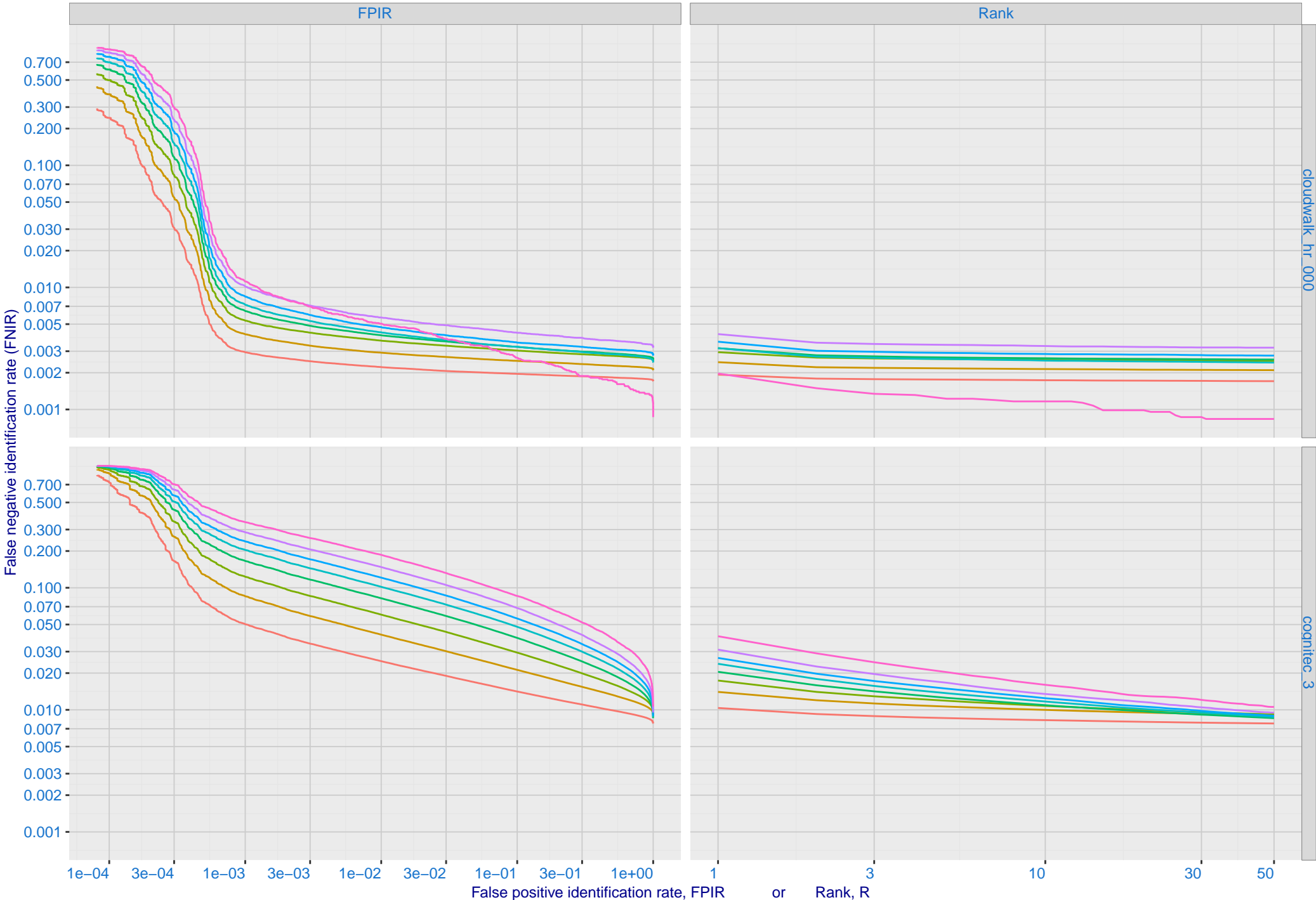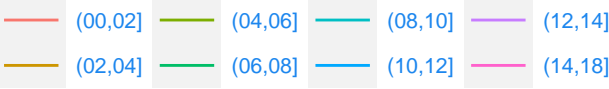
R: Decline of genuine scores with ageing, with some eventually dropping below typical thresholds shown by the horizontal lines