A: Datasheet

Algorithm: deepsea_001

Developer: Tencent Deepsea Lab

Submission Date: 2019_07_29

Template size: 2048 bytes

Template time (2.5 percentile): 731 msec

Template time (median): 738 msec

Template time (97.5 percentile): 1038 msec

Investigation:

Frontal mugshot ranking 73 (out of 265) –– FNIR(1600000, 0, 1) = 0.0043 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 49 (out of 227) –– FNIR(1600000, 0, 1) = 0.0159 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 100 (out of 196) –– FNIR(1600000, 0, 1) = 0.8138 vs. lowest 0.0591 from sensetime_005

Immigration visa–border ranking 60 (out of 148) –– FNIR(1600000, 0, 1) = 0.0095 vs. lowest 0.0013 from visionlabs_010

Immigration visa–kiosk ranking 61 (out of 145) –– FNIR(1600000, 0, 1) = 0.1398 vs. lowest 0.0568 from hr_000

Identification:

Frontal mugshot ranking 75 (out of 265) –– FNIR(1600000, T, L+1) = 0.0461, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 66 (out of 225) –– FNIR(1600000, T, L+1) = 0.1013, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 69 (out of 195) –– FNIR(1600000, T, L+1) = 0.9846, FPIR=0.001000 vs. lowest 0.1331 from hr_000

Immigration visa–border ranking 61 (out of 146) –– FNIR(1600000, T, L+1) = 0.0768, FPIR=0.001000 vs. lowest 0.0049 from hr_000

Immigration visa–kiosk ranking 47 (out of 141) –– FNIR(1600000, T, L+1) = 0.3280, FPIR=0.001000 vs. lowest 0.0996 from hr_000
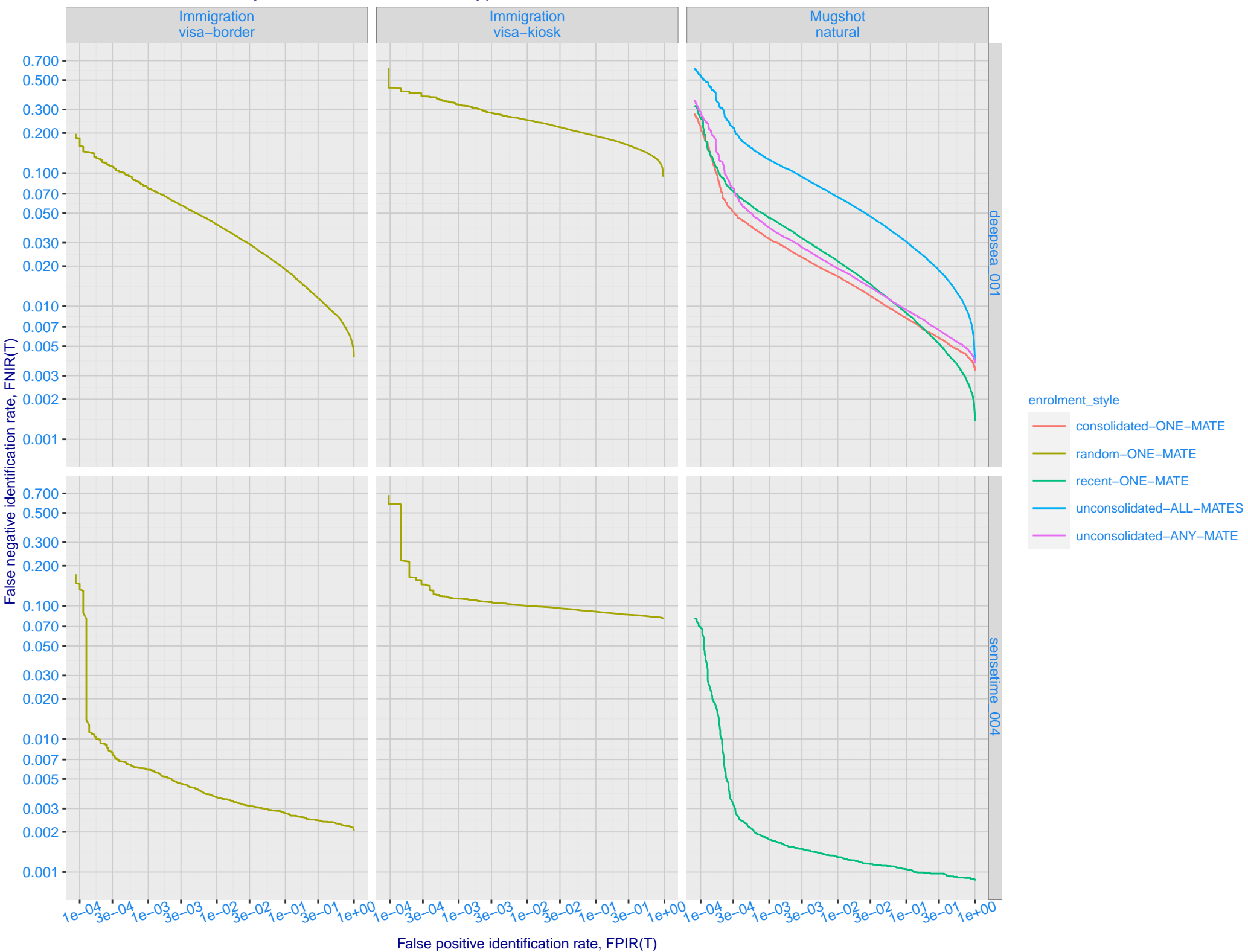
B: Mugshot natural images, identification mode: FNIR(N, L+1, T) vs. most accurate (sensetime_004)
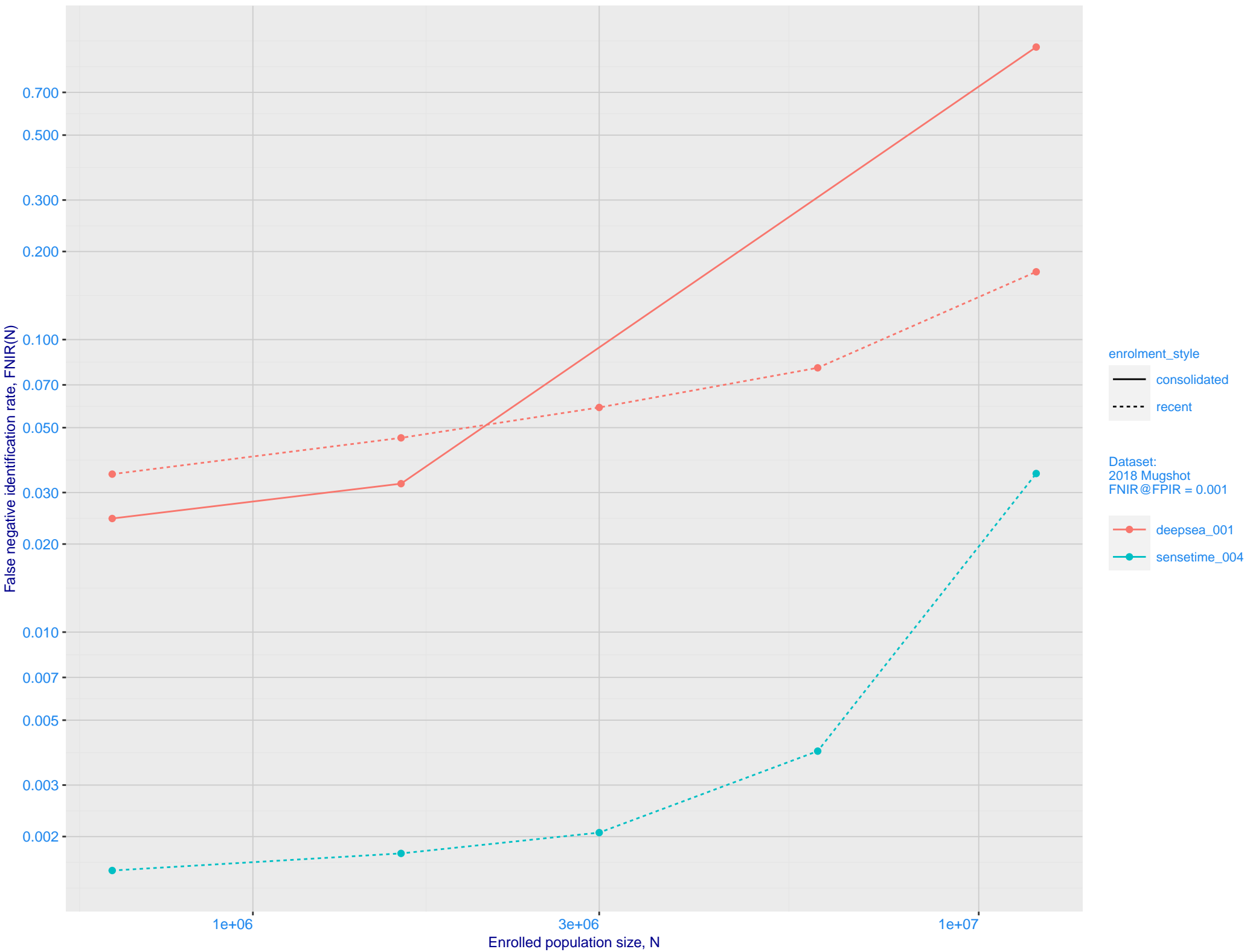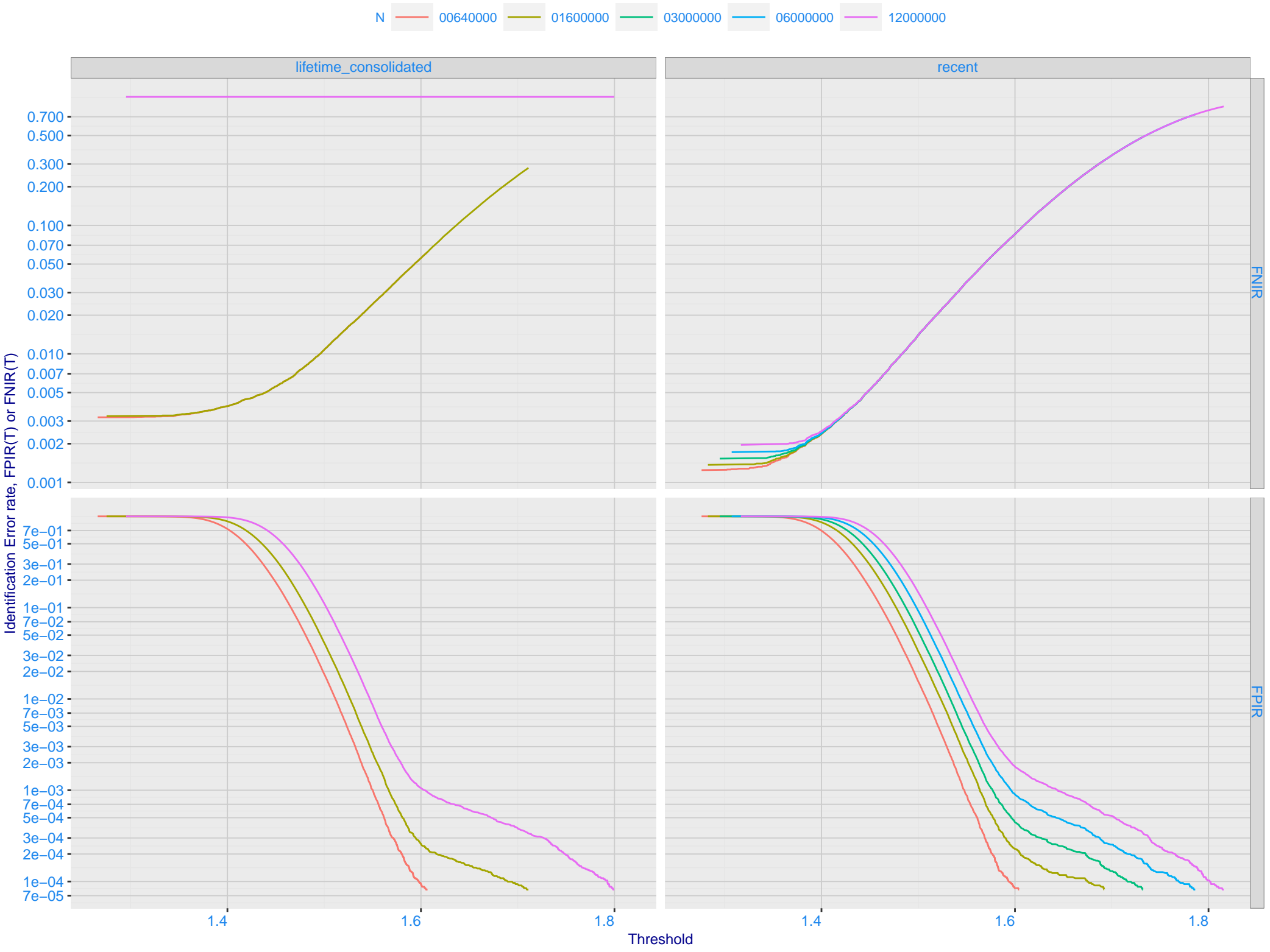
C: Evolution of accuracy for DEEPSEA algorithms on three datasets 2018 – present
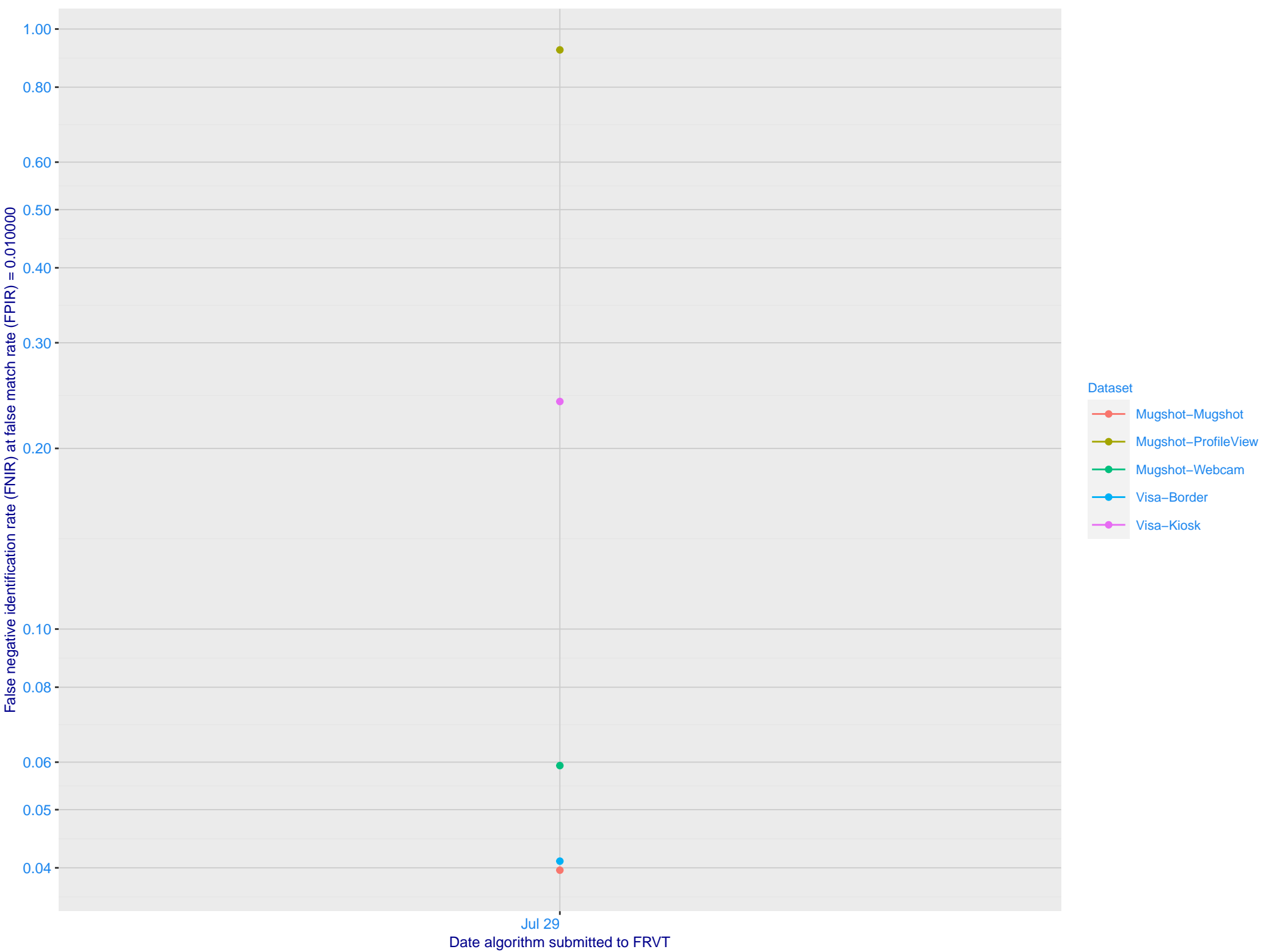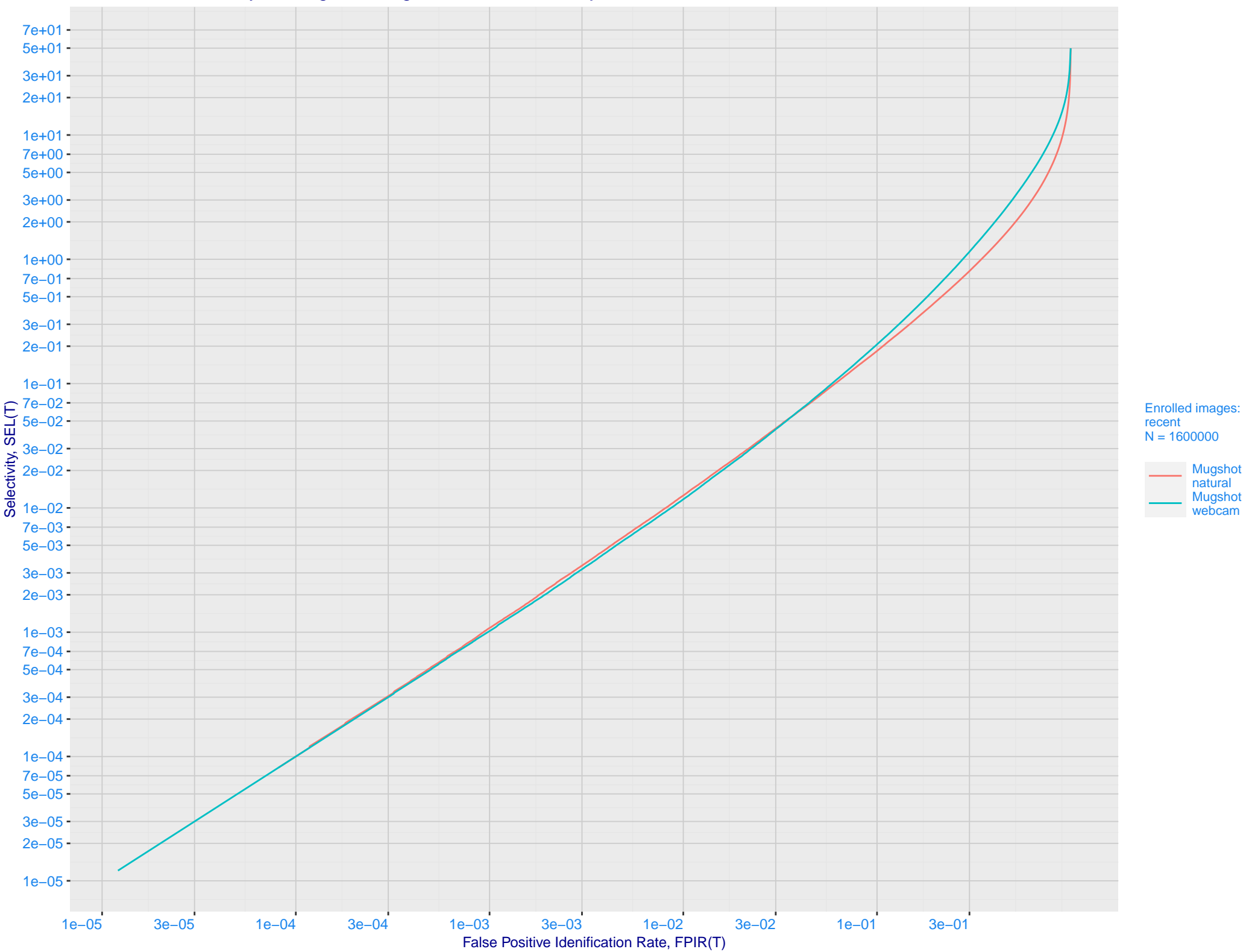
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals
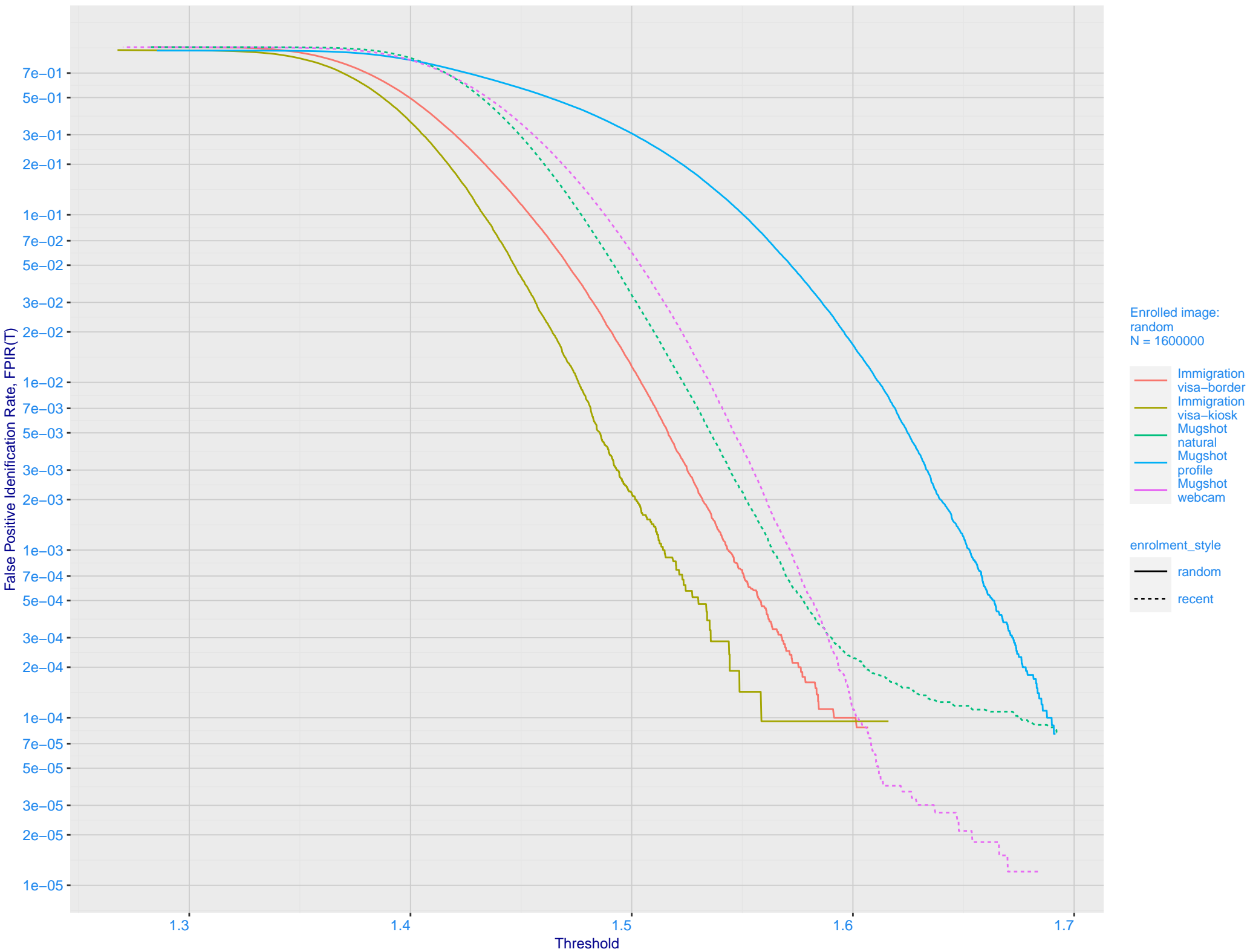
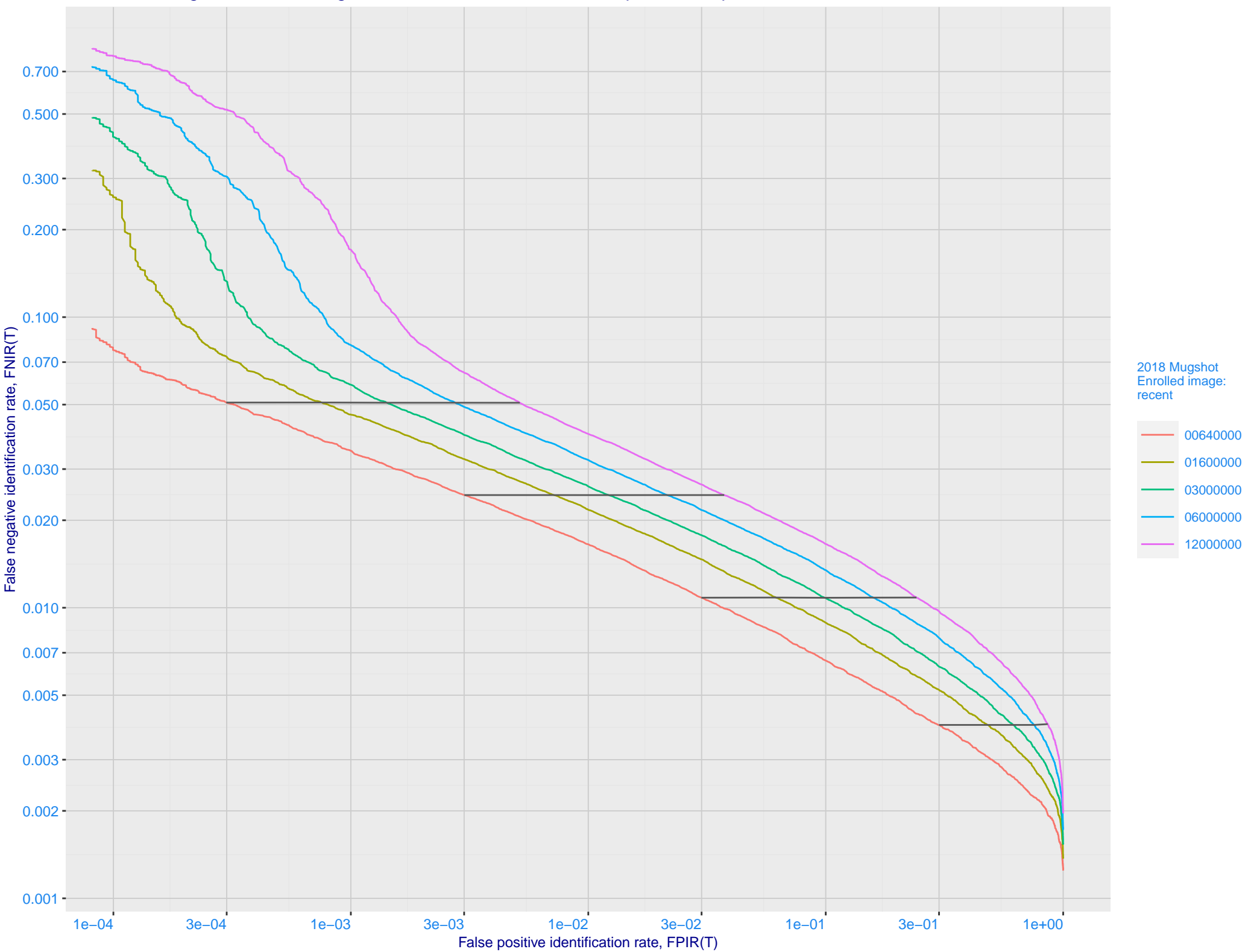E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images

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

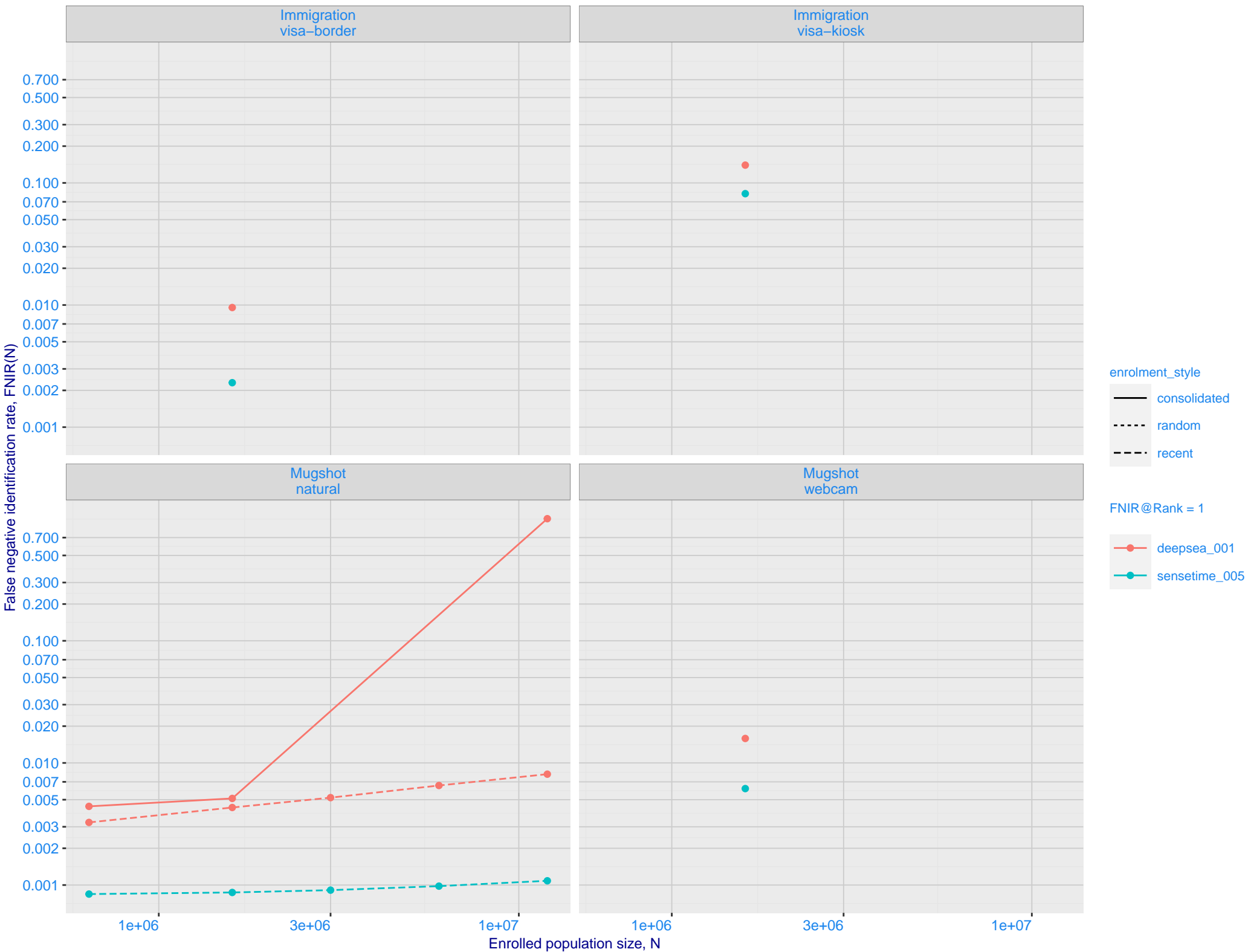G: FPIR dependence on T by probe type for N = 1600000 subjects

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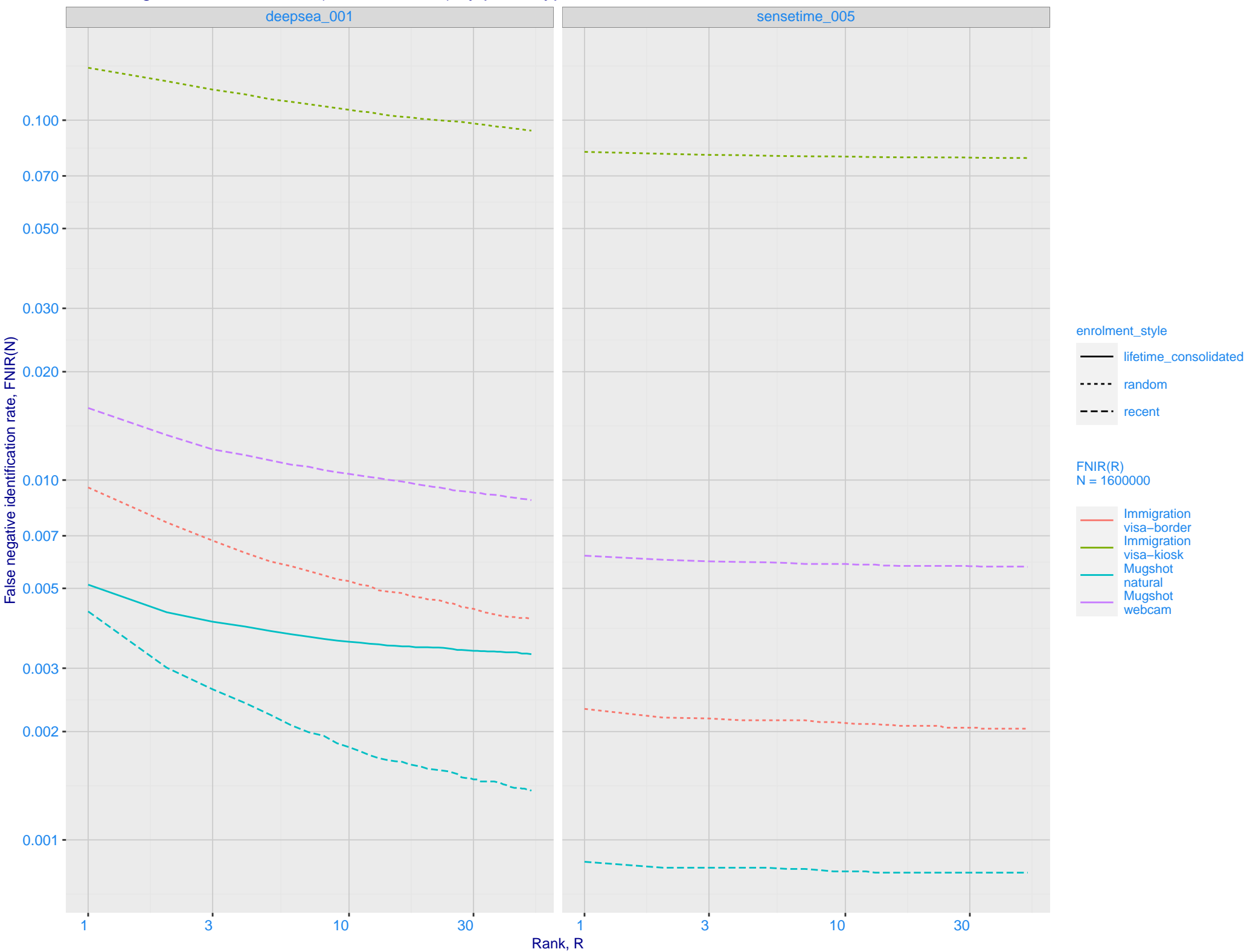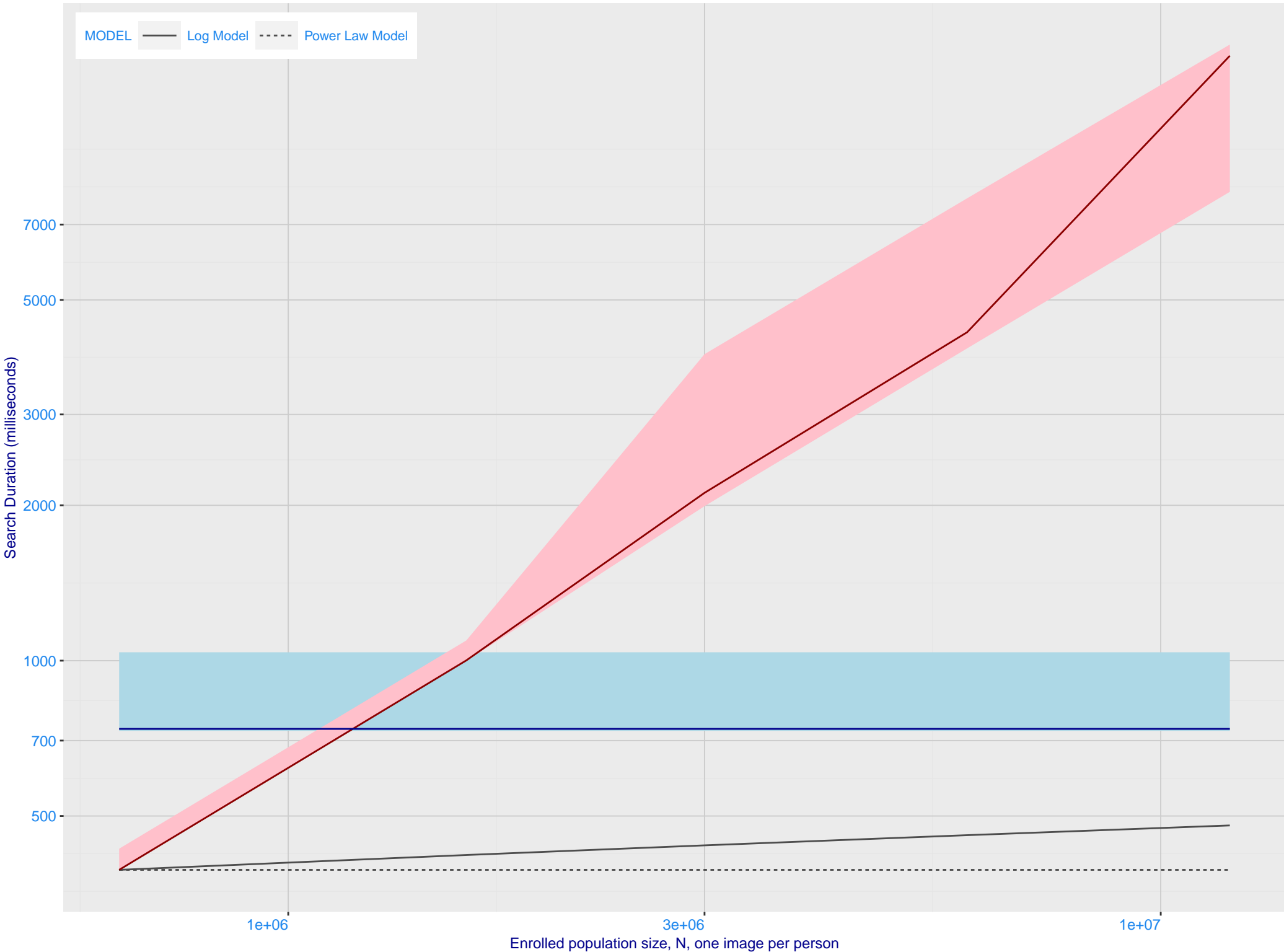
I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005)

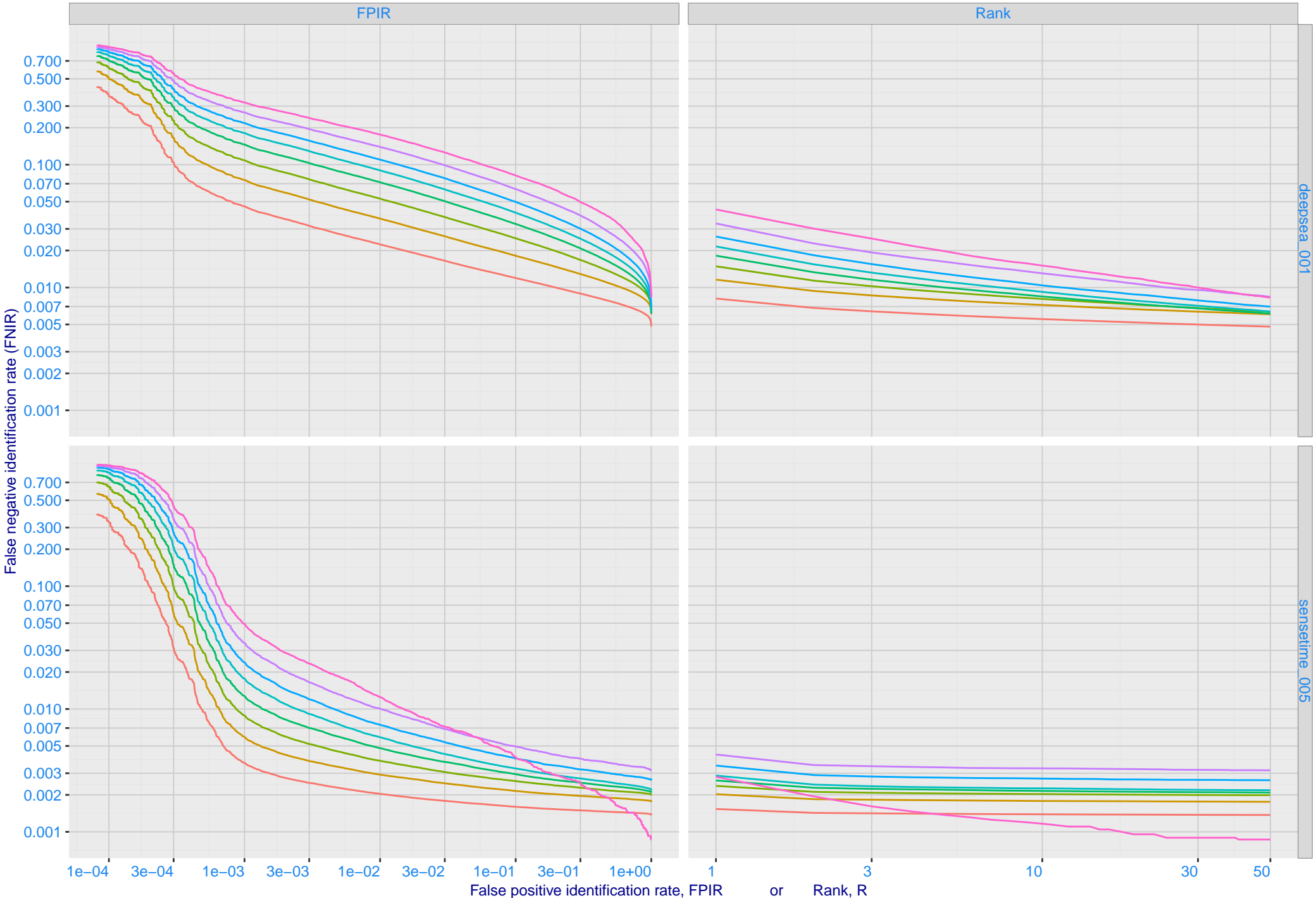J: Investigational mode: FNIR(1600000, R, 0) by probe type

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

N: Decline of genuine scores with ageing