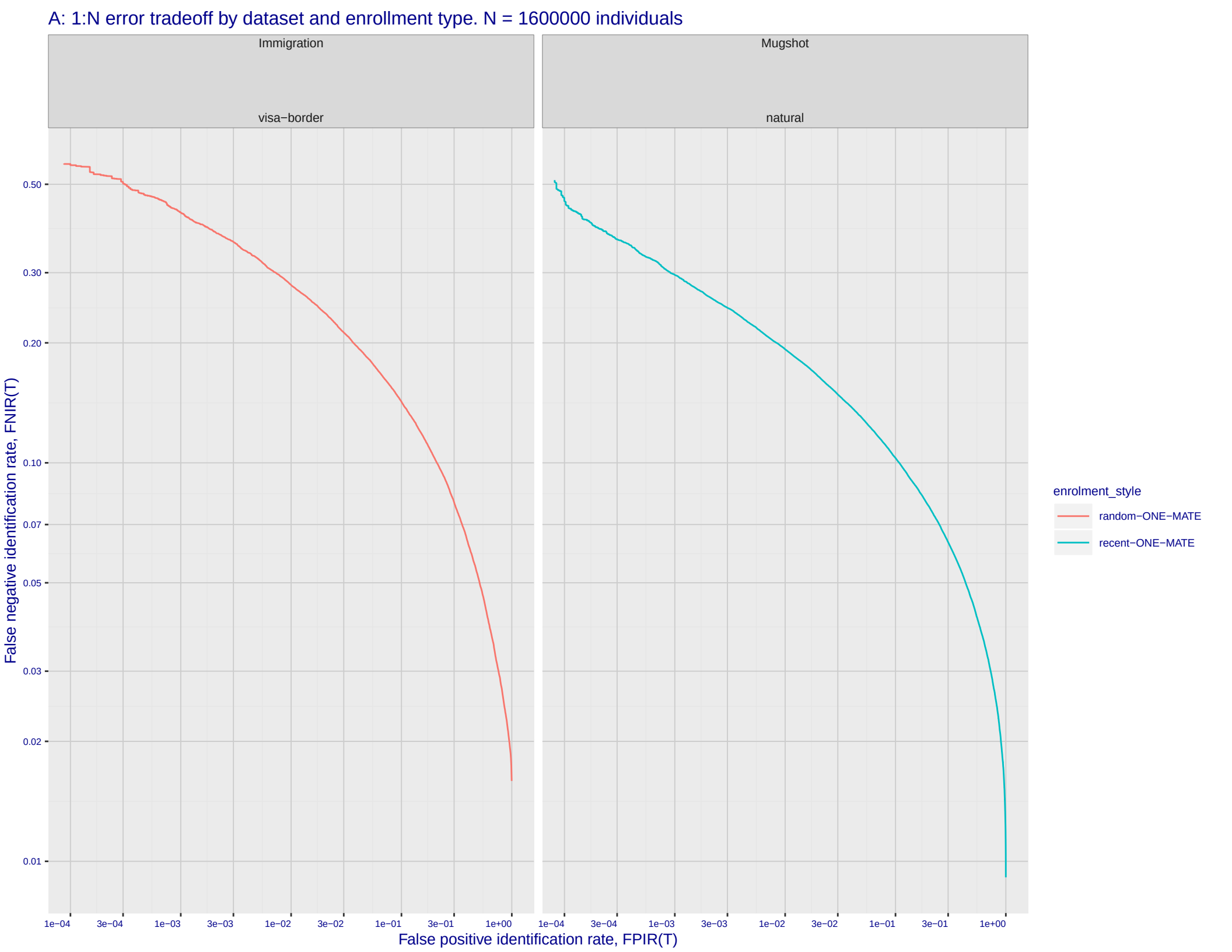
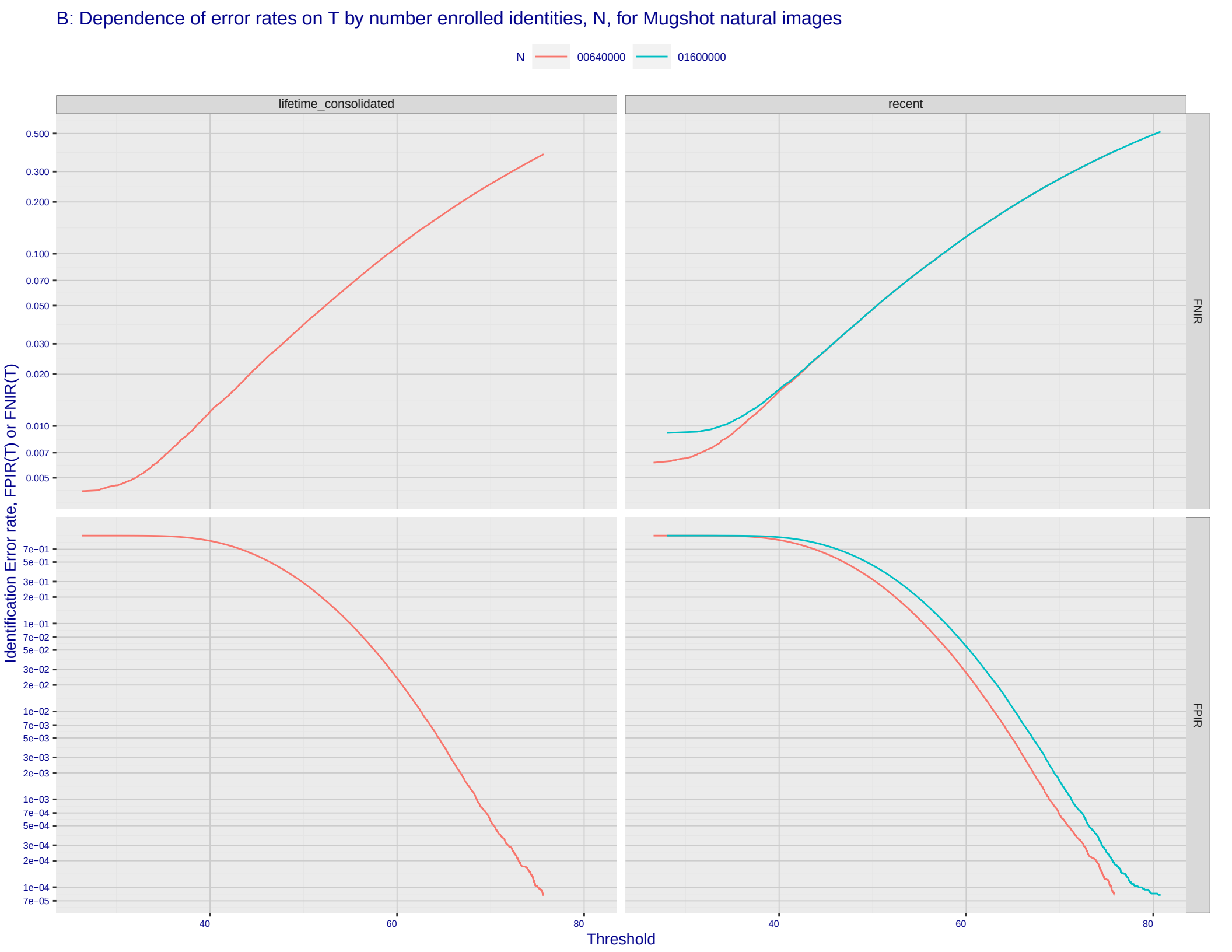
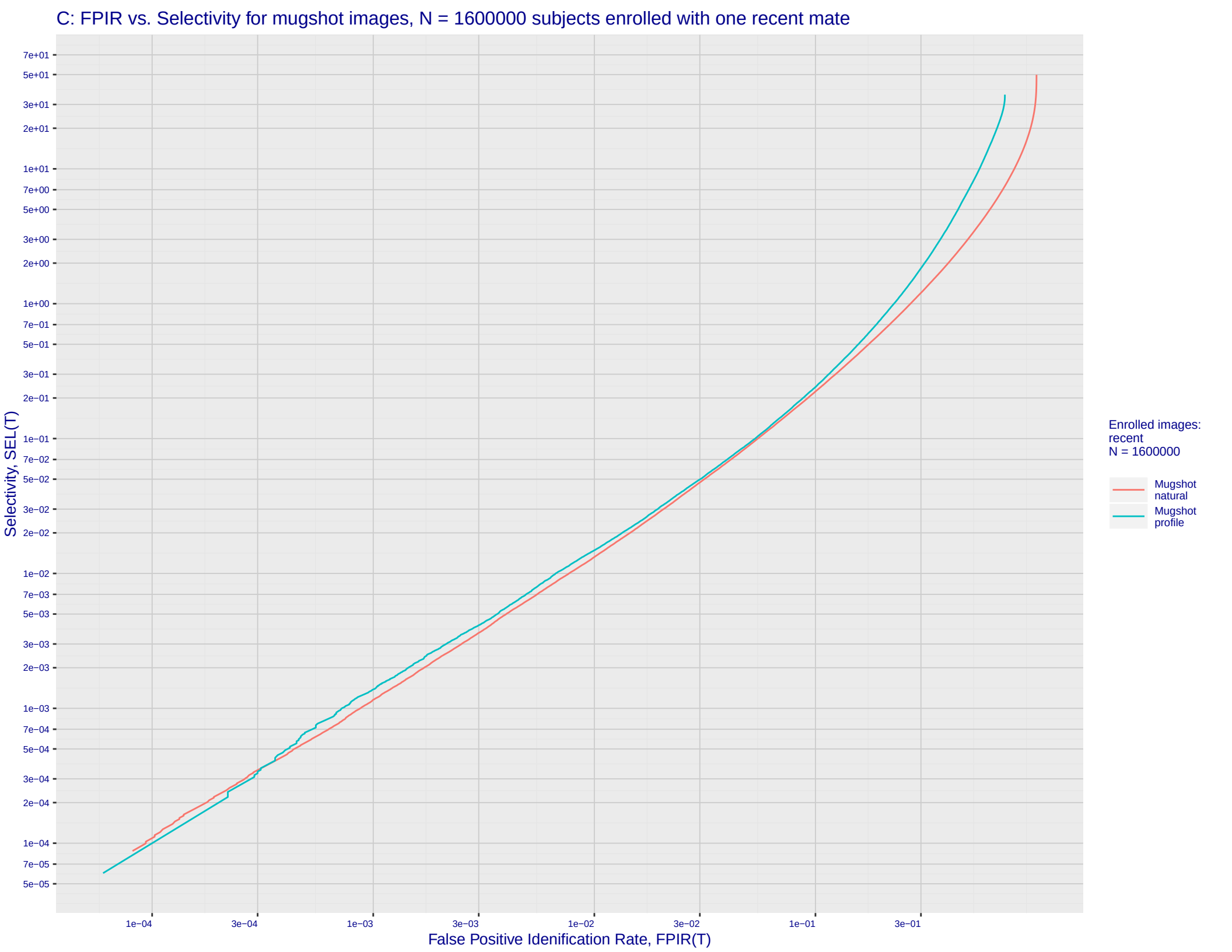
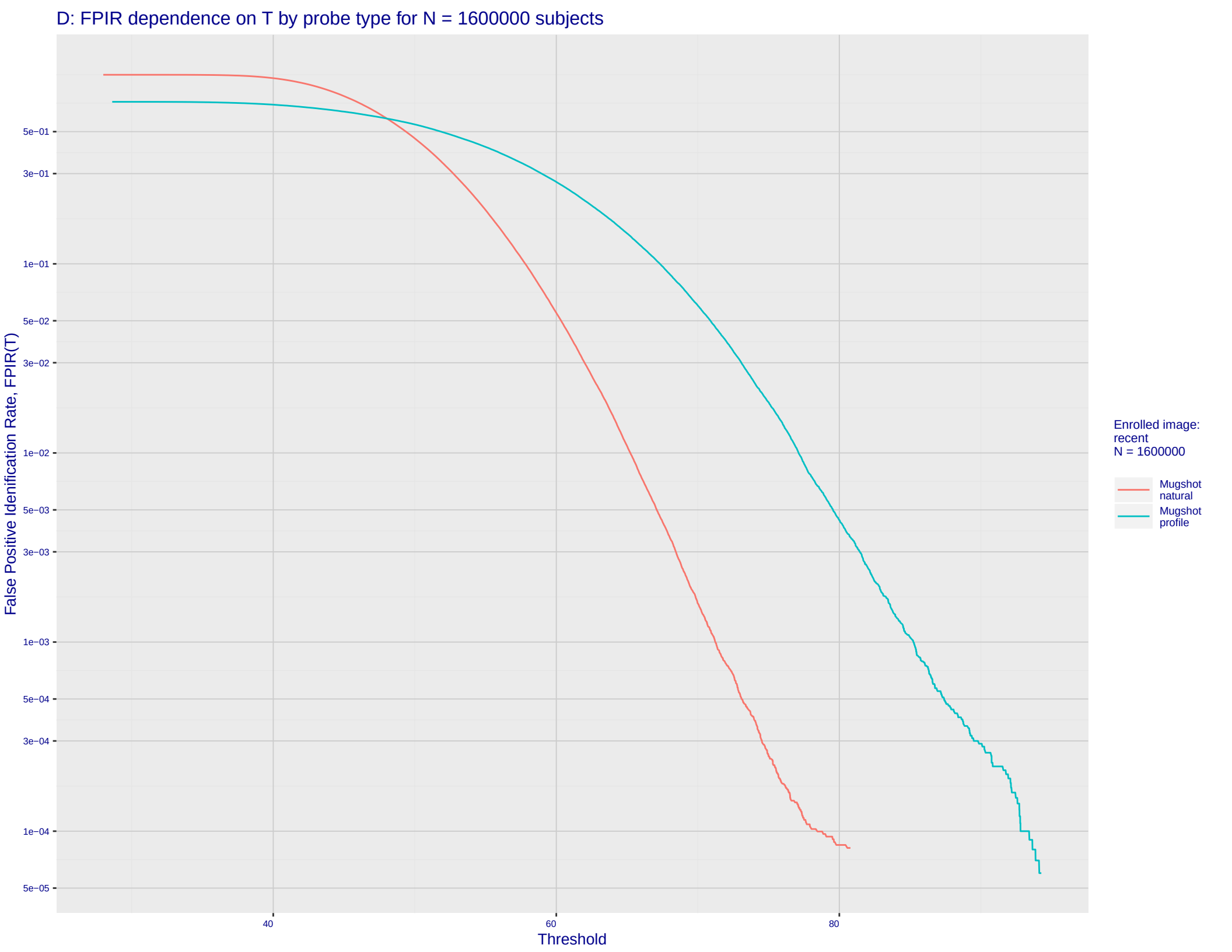
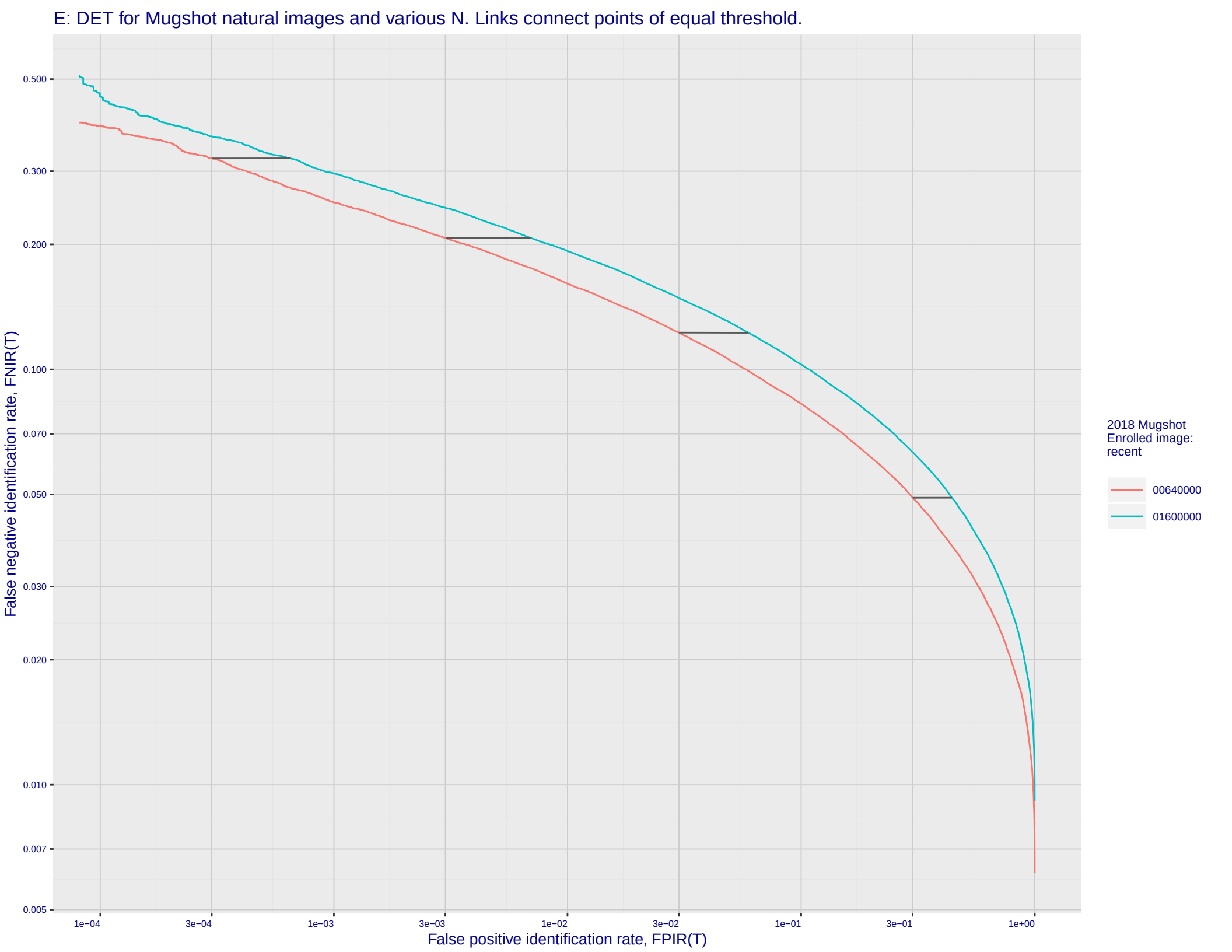
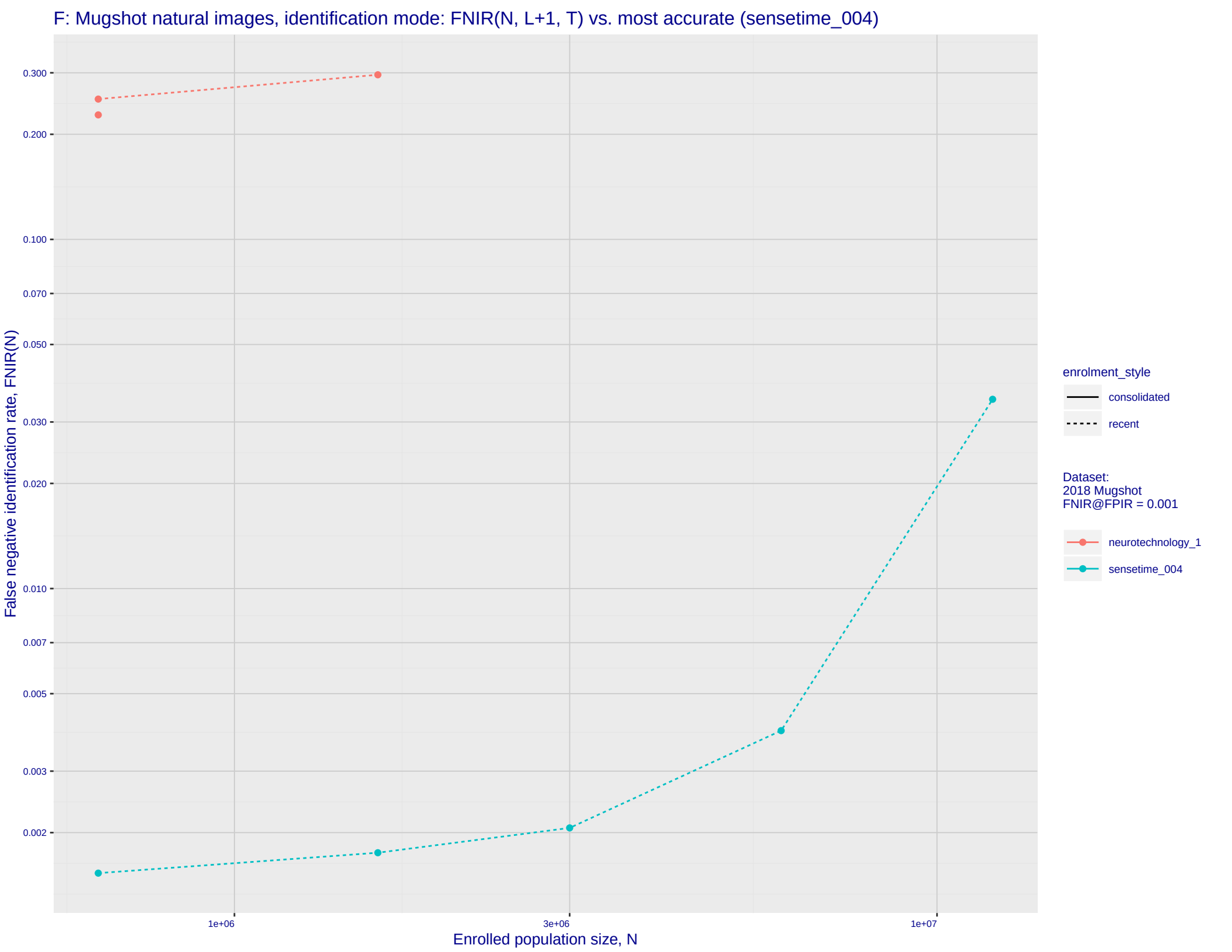

A: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals
Immigration
visa−border
Mugshot
natural
False negative identification rate, FNIR(T)
0.50
0.30
0.20
0.10
0.07
0.05
0.03
0.02
0.01
1e−04
3e−04
1e−03
3e−03
1e−02
3e−02
1e−01
3e−01
1e+00
False positive identification rate, FPIR(T)
enrolment_style
random−ONE−MATE
recent−ONE−MATE


B: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images
N
00640000
01600000
lifetime_consolidated
recent
FNIR
FPIR
Identification Error rate, FPIR(T) or FNIR(T)
0.500
0.300
0.200
0.100
0.070
0.050
0.030
0.020
0.010
0.007
0.005
7e−01
5e−01
3e−01
2e−01
1e−01
7e−02
5e−02
3e−02
2e−02
1e−02
7e−03
5e−03
3e−03
2e−03
1e−03
7e−04
5e−04
3e−04
2e−04
1e−04
7e−05
40
60
80
Threshold


C: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate
Selectivity, SEL(T)
7e+01
5e+01
3e+01
2e+01
1e+01
7e+00
5e+00
3e+00
2e+00
1e+00
7e−01
5e−01
3e−01
2e−01
1e−01
7e−02
5e−02
3e−02
2e−02
1e−02
7e−03
5e−03
3e−03
2e−03
1e−03
7e−04
5e−04
3e−04
2e−04
1e−04
7e−05
5e−05
1e−04
3e−04
1e−03
3e−03
1e−02
3e−02
1e−01
3e−01
False Positive Idenification Rate, FPIR(T)
Enrolled images:
recent
N = 1600000
Mugshot
natural
Mugshot
profile


D: FPIR dependence on T by probe type for N = 1600000 subjects
False Positive Idenification Rate, FPIR(T)
5e−01
3e−01
1e−01
5e−02
3e−02
1e−02
5e−03
3e−03
1e−03
5e−04
3e−04
1e−04
5e−05
40
60
80
Threshold
Enrolled image:
recent
N = 1600000
Mugshot
natural
Mugshot
profile


E: DET for Mugshot natural images and various N. Links connect points of equal threshold.
False negative identification rate, FNIR(T)
0.500
0.300
0.200
0.100
0.070
0.050
0.030
0.020
0.010
0.007
0.005
1e−04
3e−04
1e−03
3e−03
1e−02
3e−02
1e−01
3e−01
1e+00
False positive identification rate, FPIR(T)
2018 Mugshot
Enrolled image:
recent
00640000
01600000


F: Mugshot natural images, identification mode: FNIR(N, L+1, T) vs. most accurate (sensetime_004)
False negative identification rate, FNIR(N)
0.300
0.200
0.100
0.070
0.050
0.030
0.020
0.010
0.007
0.005
0.003
0.002
1e+06
3e+06
1e+07
Enrolled population size, N
enrolment_style
consolidated
recent
Dataset:
2018 Mugshot
FNIR@FPIR = 0.001
neurotechnology_1
sensetime_004

G: Datasheet

Algorithm: neurotechnology_1

Developer: Neurotechnology

Submission Date: 2018_02_16

Template size: 5214 bytes

Template time (2.5 percentile): 650 msec

Template time (median): 656 msec

Template time (97.5 percentile): 776 msec

Frontal mugshot investigation rank 186 −− FNIR(1600000, 0, 1) = 0.0441 vs. lowest 0.0010 from sensetime_004

natural investigation rank 270 −− FNIR(1600000, 0, 1) = 0.9465 vs. lowest 0.0492 from paravision_005

natural investigation rank 270 −− FNIR(1600000, 0, 1) = 0.9465 vs. lowest 0.0492 from paravision_005

natural investigation rank 78 −− FNIR(1600000, 0, 1) = 0.0581 vs. lowest 0.0014 from visionlabs_009

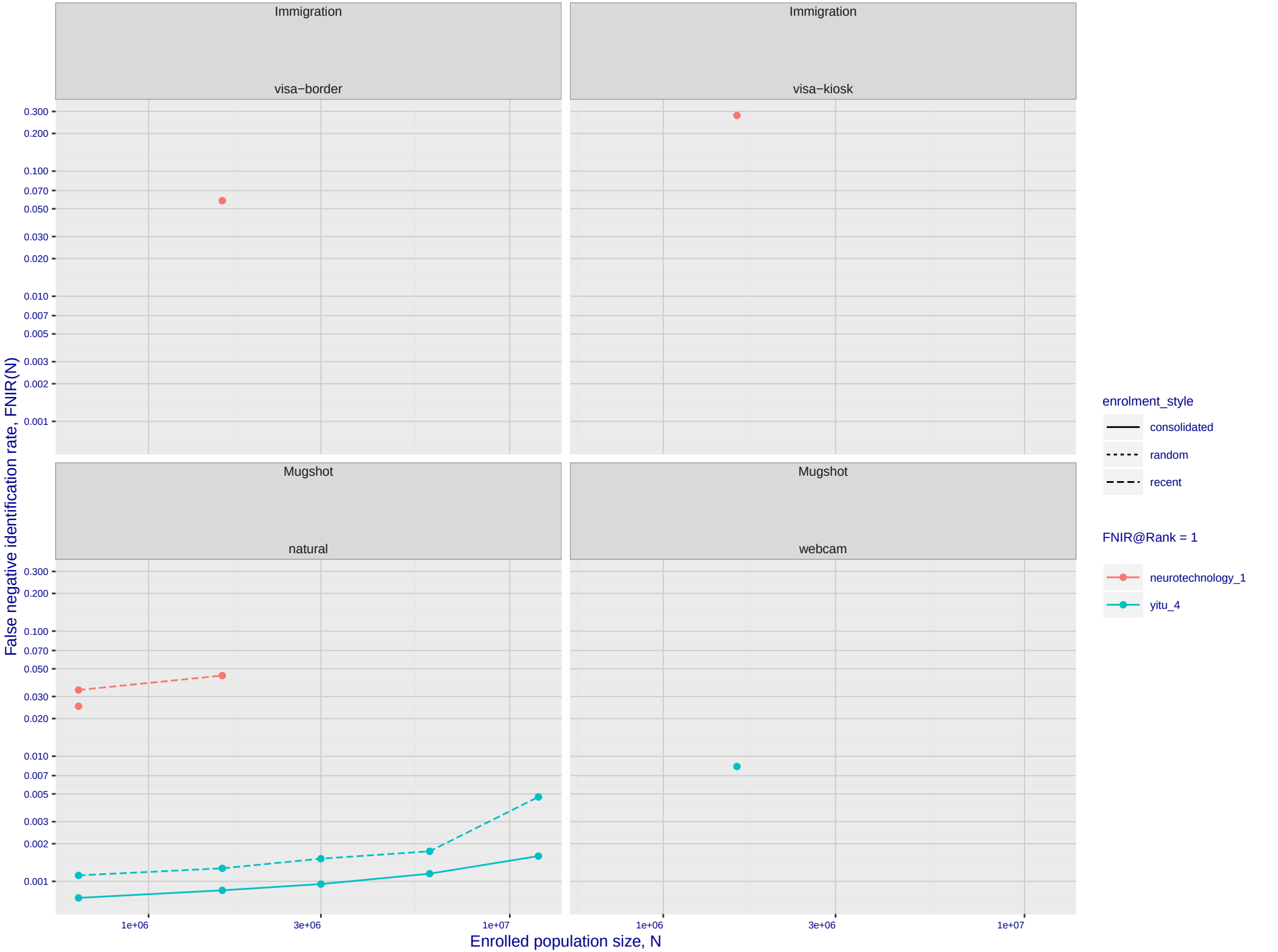
natural investigation rank 75 −− FNIR(1600000, 0, 1) = 0.2787 vs. lowest 0.0694 from cib_000

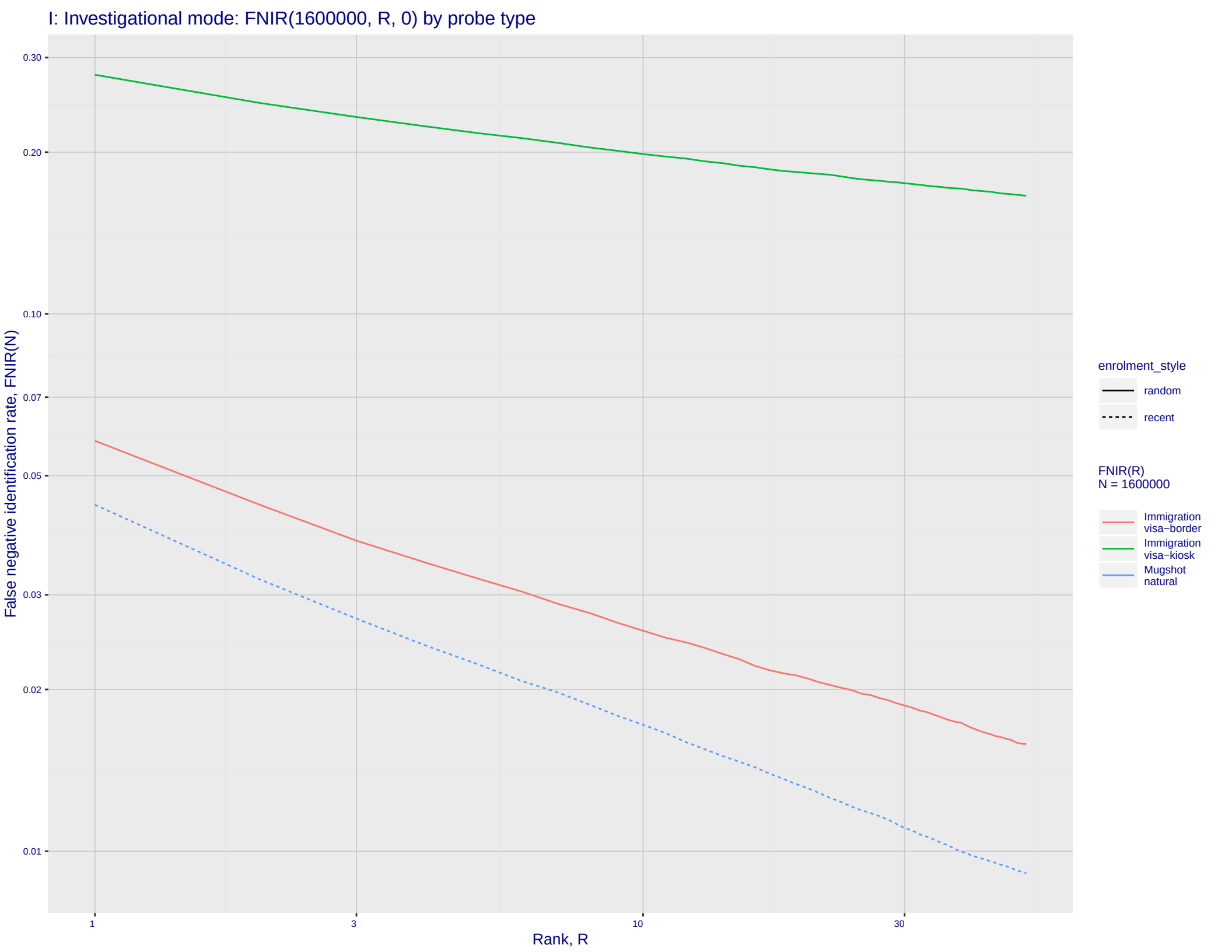
Frontal mugshot identification rank 181 −− FNIR(1600000, T, L+1) = 0.2961 vs. lowest 0.0018 from sensetime_004

natural identification rank 104 −− FNIR(1600000, T, L+1) = 0.9963 vs. lowest 0.1020 from sensetime_004

natural identification rank 75 −− FNIR(1600000, T, L+1) = 0.4249 vs. lowest 0.0059 from sensetime_004

H: Investigational mode: FNIR(N, 1, 0) vs. most accurate (yitu_4)




I: Investigational mode: FNIR(1600000, R, 0) by probe type
False negative identification rate, FNIR(N)
0.30
0.20
0.10
0.07
0.05
0.03
0.02
0.01
1
3
10
30
Rank, R
enrolment_style
random
recent
FNIR(R)
N = 1600000
Immigration visa−border
Immigration visa−kiosk
Mugshot natural

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