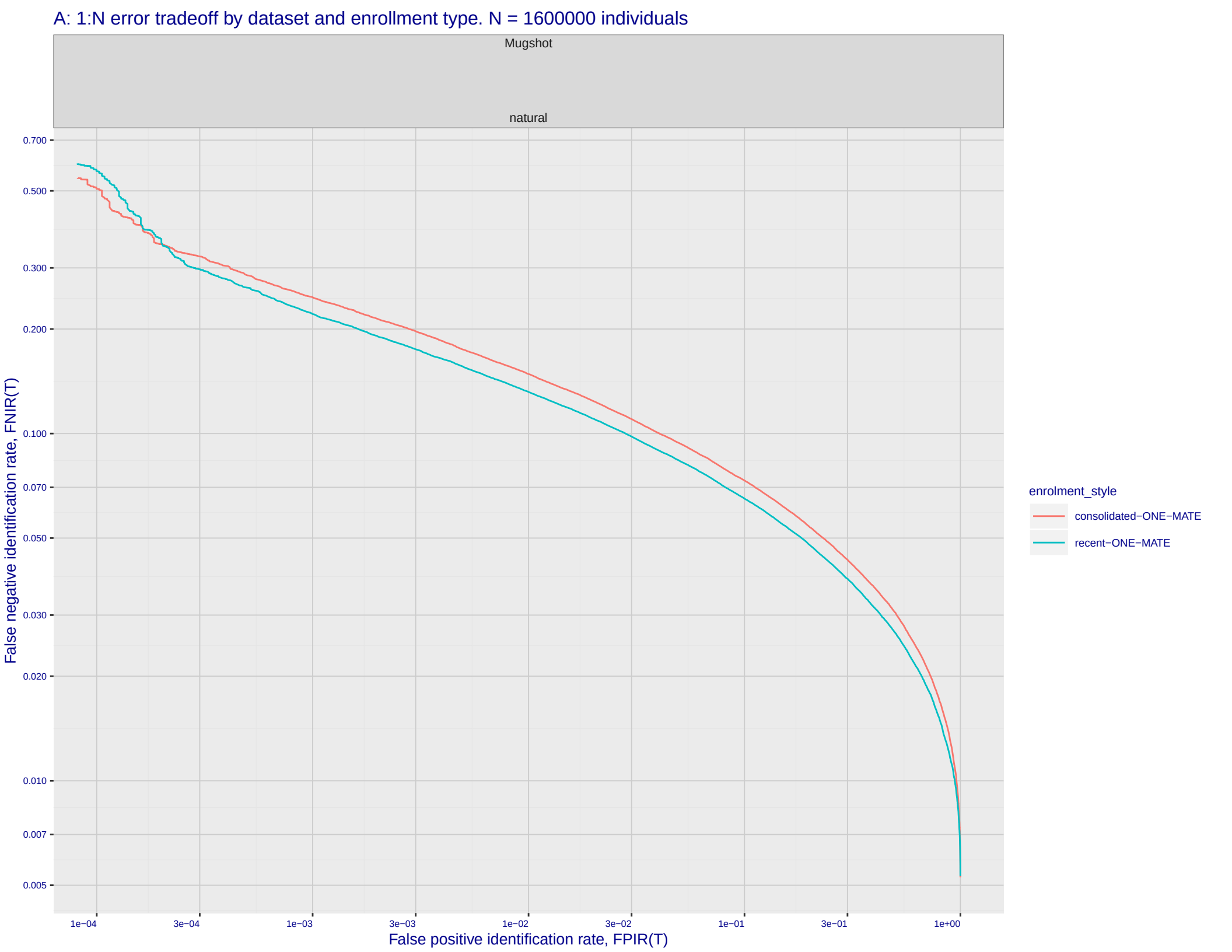
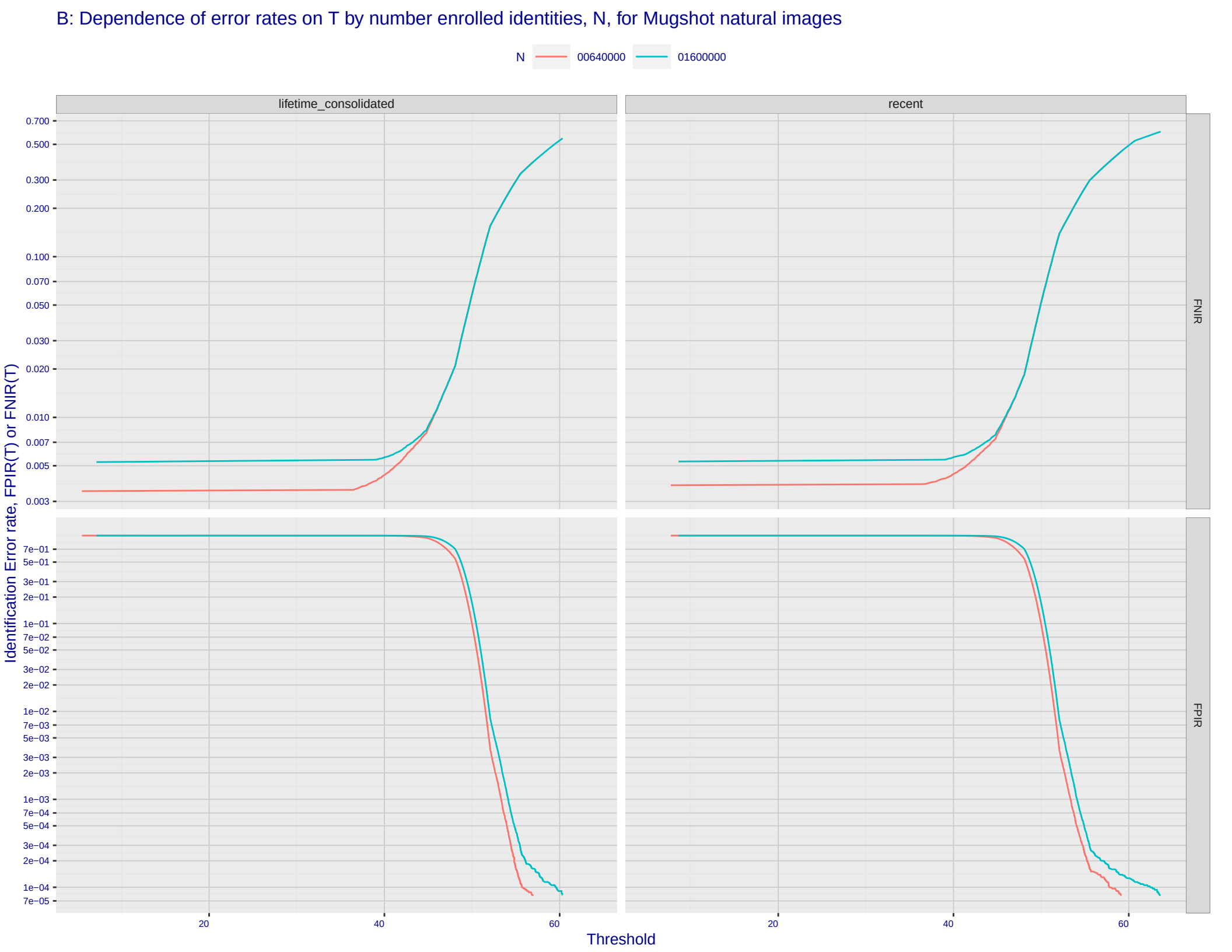
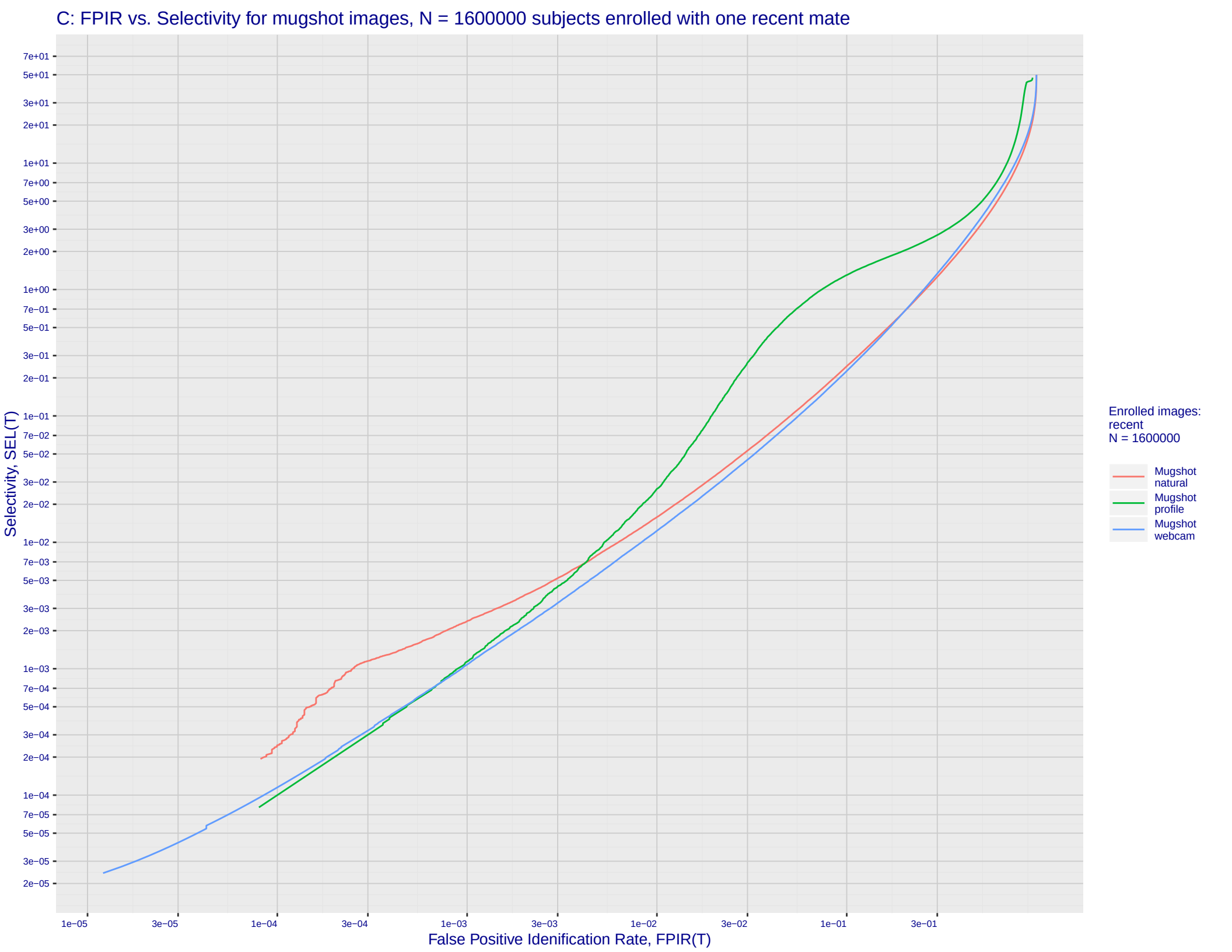
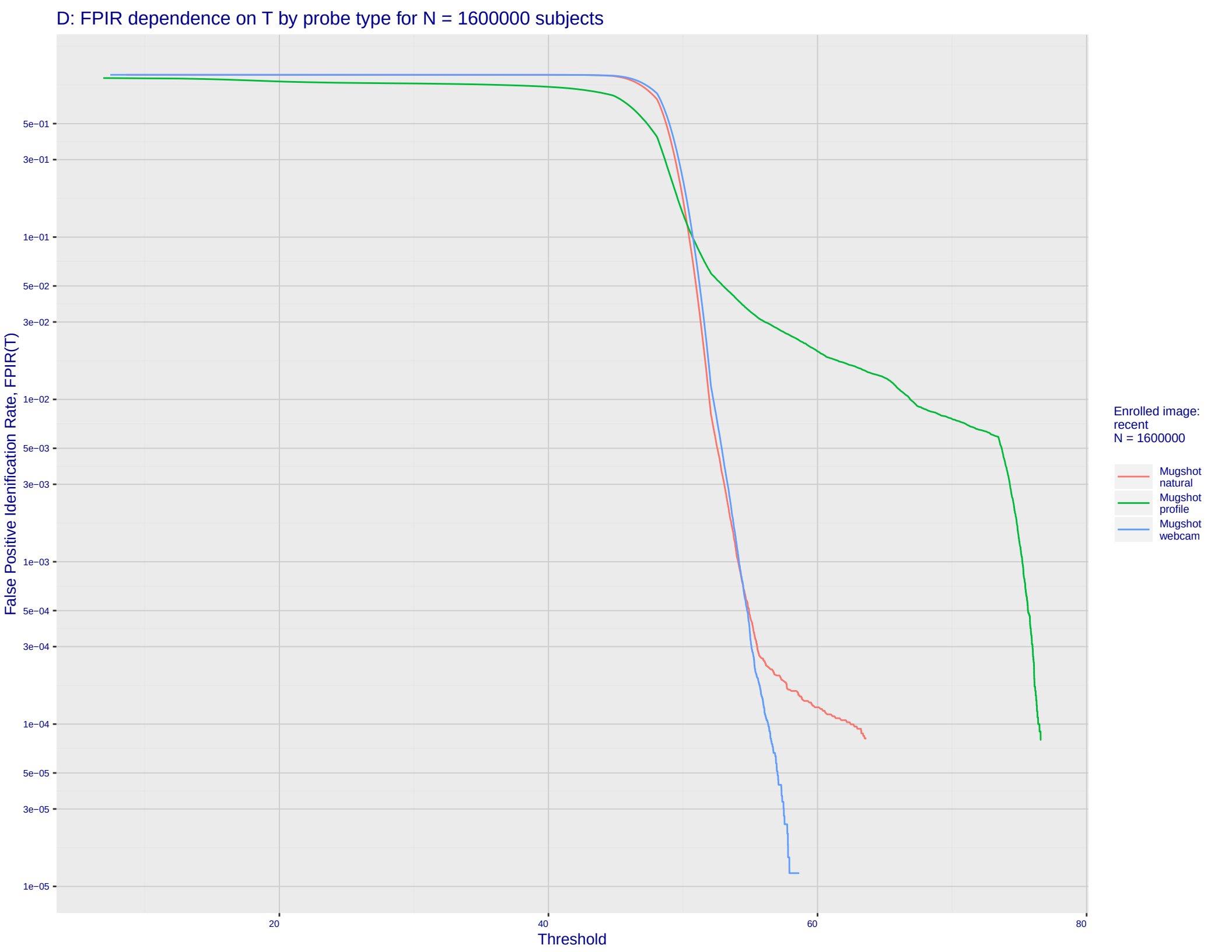
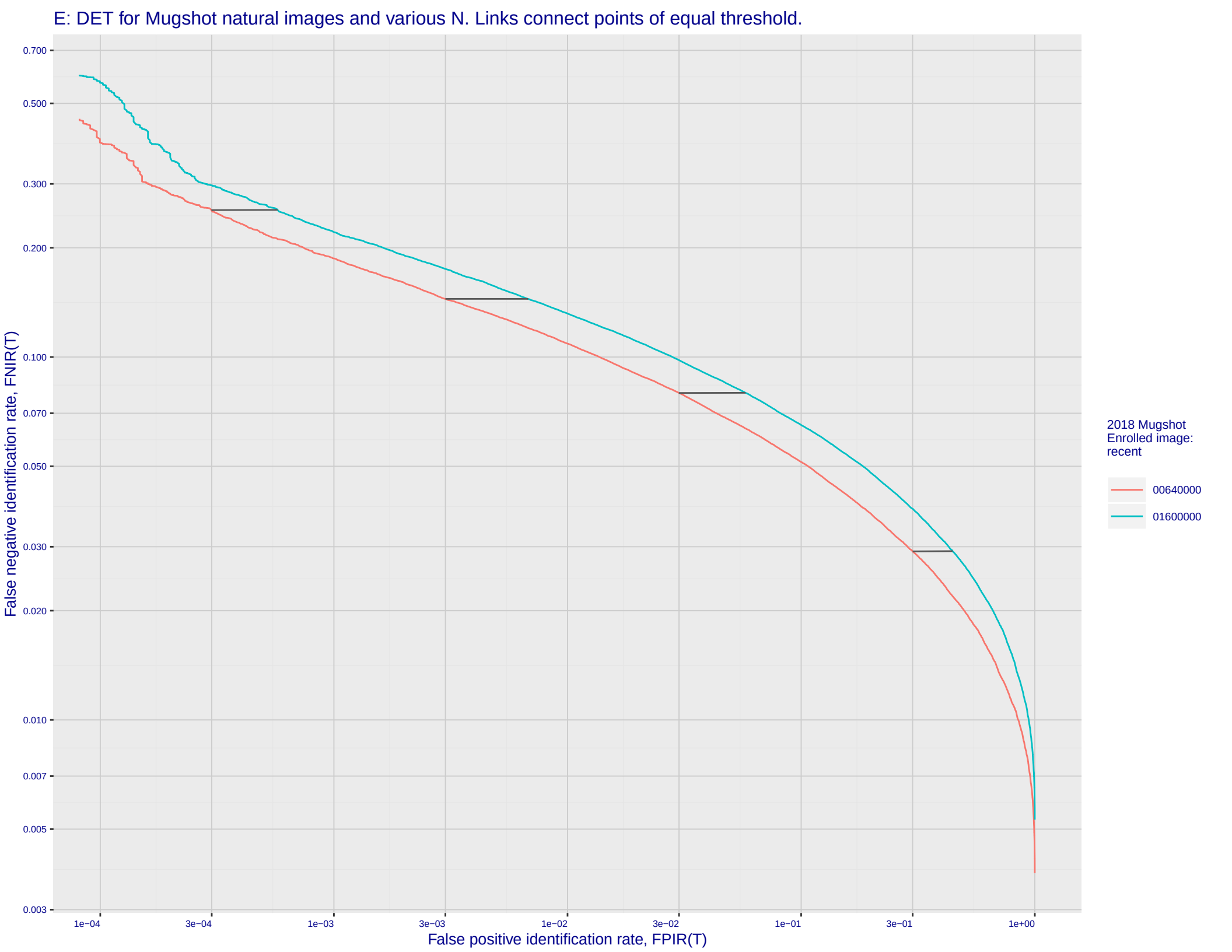
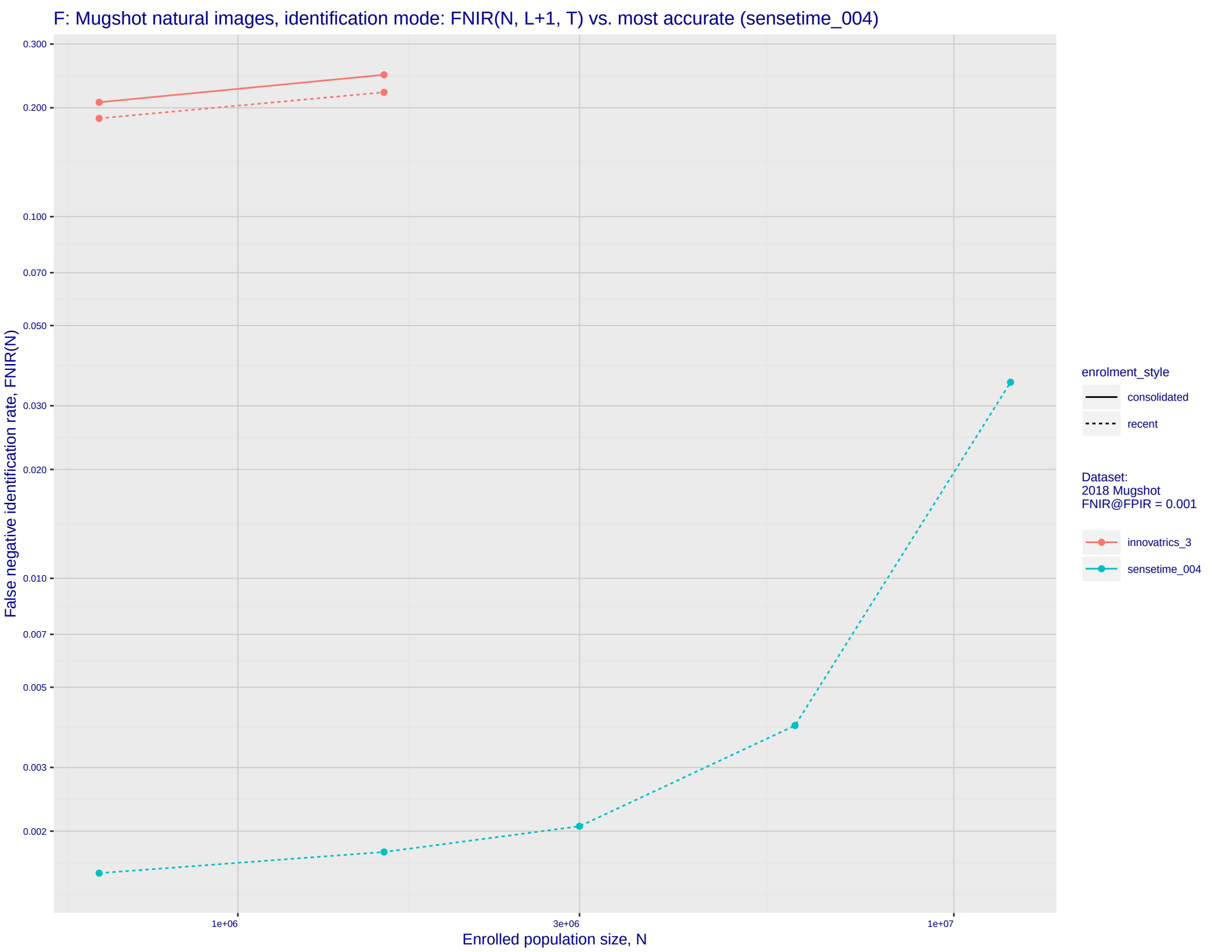

A: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals
Mugshot
natural
False negative identification rate, FNIR(T)
0.700
0.500
0.300
0.200
0.100
0.070
0.050
0.030
0.020
0.010
0.007
0.005
1e−04
3e−04
1e−03
3e−03
1e−02
3e−02
1e−01
3e−01
1e+00
False positive identification rate, FPIR(T)
enrolment_style
consolidated−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)
0.700
0.500
0.300
0.200
0.100
0.070
0.050
0.030
0.020
0.010
0.007
0.005
0.003
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
20
40
60
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
3e−05
2e−05
1e−05
3e−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
Mugshot
webcam


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
3e−05
1e−05
20
40
60
80
Threshold
Enrolled image:
recent
N = 1600000
Mugshot
natural
Mugshot
profile
Mugshot
webcam


E: DET for Mugshot natural images and various N. Links connect points of equal threshold.
False negative identification rate, FNIR(T)
0.700
0.500
0.300
0.200
0.100
0.070
0.050
0.030
0.020
0.010
0.007
0.005
0.003
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
innovatrics_3
sensetime_004

G: Datasheet

Algorithm: innovatrics_3

Developer: Innovatrics

Submission Date: 2018_06_21

Template size: 530 bytes

Template time (2.5 percentile): 250 msec

Template time (median): 251 msec

Template time (97.5 percentile): 273 msec

Frontal mugshot investigation rank 164 −− FNIR(1600000, 0, 1) = 0.0263 vs. lowest 0.0010 from sensetime_004

natural investigation rank 135 −− FNIR(1600000, 0, 1) = 0.0546 vs. lowest 0.0067 from sensetime_003

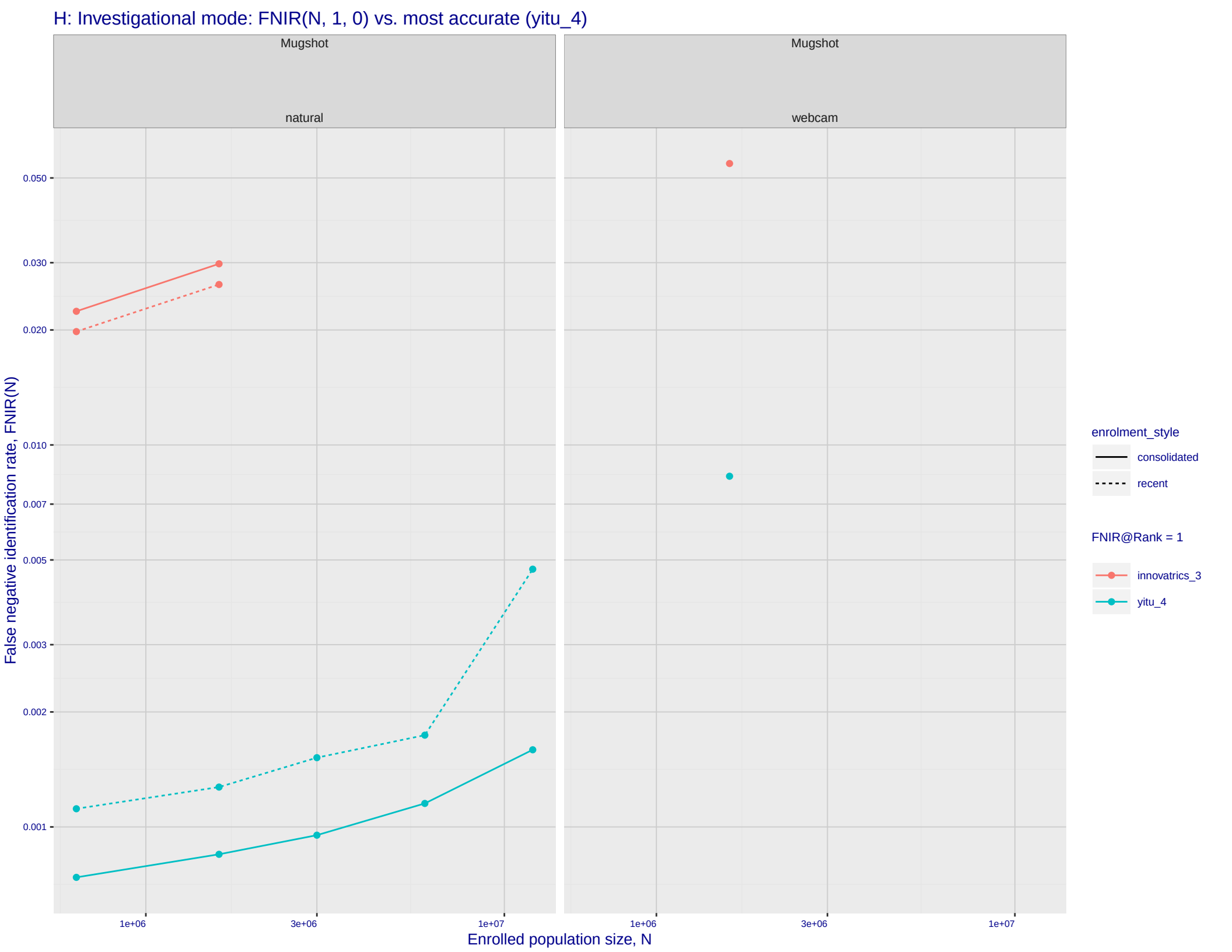
natural investigation rank 159 −− FNIR(1600000, 0, 1) = 0.7123 vs. lowest 0.0492 from paravision_005

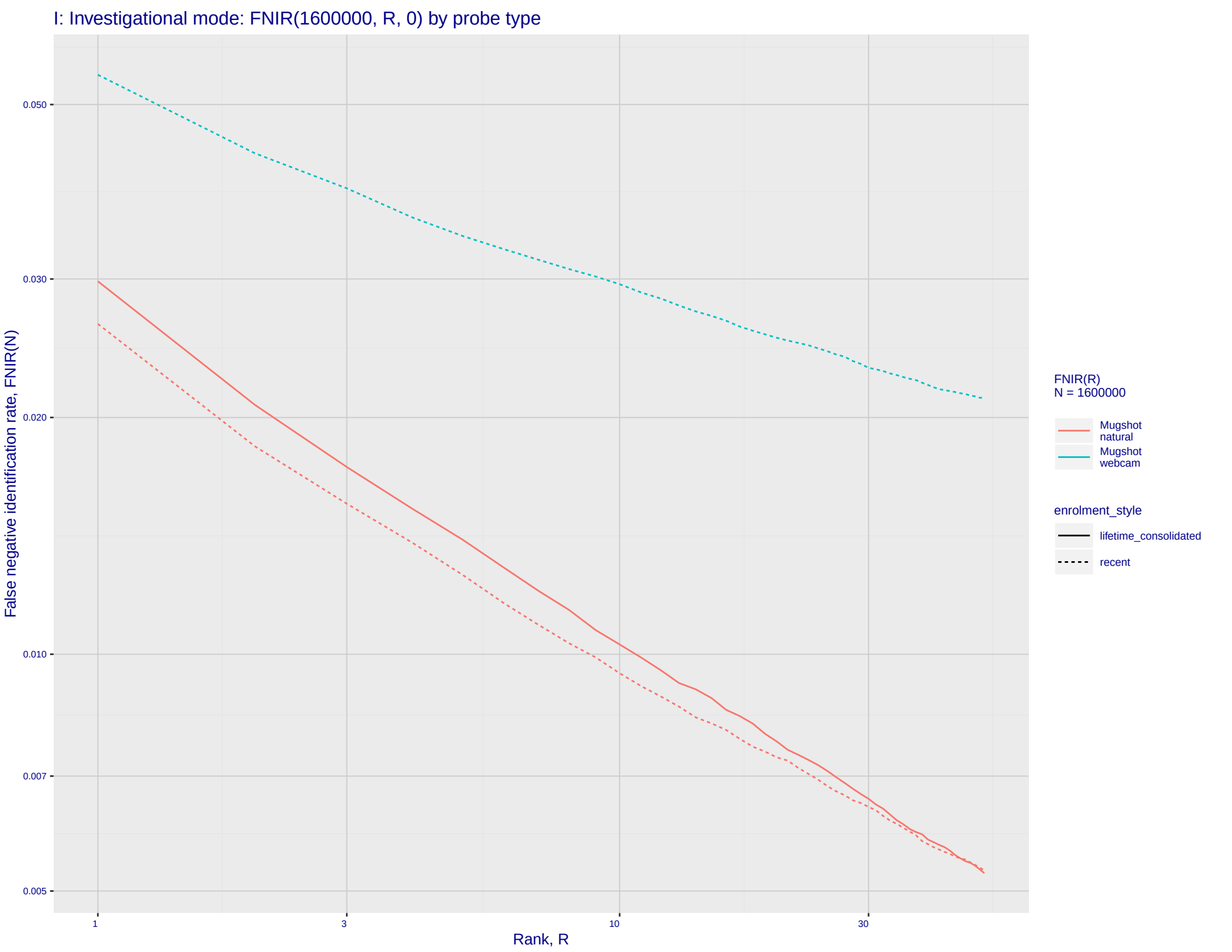
natural investigation rank 159 −− FNIR(1600000, 0, 1) = 0.7123 vs. lowest 0.0492 from paravision_005

Frontal mugshot identification rank 166 −− FNIR(1600000, T, L+1) = 0.2207 vs. lowest 0.0018 from sensetime_004

natural identification rank 142 −− FNIR(1600000, T, L+1) = 0.2967 vs. lowest 0.0122 from sensetime_003

natural identification rank 135 −− FNIR(1600000, T, L+1) = 0.9992 vs. lowest 0.1020 from sensetime_004


H: Investigational mode: FNIR(N, 1, 0) vs. most accurate (yitu_4)
Mugshot
natural
Mugshot
webcam
False negative identification rate, FNIR(N)
0.050
0.030
0.020
0.010
0.007
0.005
0.003
0.002
0.001
1e+06
3e+06
1e+07
1e+06
3e+06
1e+07
Enrolled population size, N
enrolment_style
consolidated
recent
FNIR@Rank = 1
innovatrics_3
yitu_4


I: Investigational mode: FNIR(1600000, R, 0) by probe type
False negative identification rate, FNIR(N)
0.050
0.030
0.020
0.010
0.007
0.005
1
3
10
30
Rank, R
FNIR(R)
N = 1600000
Mugshot natural
Mugshot webcam
enrolment_style
lifetime_consolidated
recent

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