Supplemental Information

selscan 2.0: scanning for sweeps in unphased data

Table S1. Demographic history parameters for simulations. N_A represents the ancestral effective population size. N_0 represents the effective population size of the population experiencing the sweep. N_0 represents the effective population size of the non-sweep population. t_d represents the split time between the two populations.

	N_A	N_0 at split	N_0 at present	N_1 at split	N_1 at present	t_d
Demo 1	10,000	10,000	10,000	10,000	10,000	2,000/4,000/8,000
Demo 2	10,000	10,000	10,000	5,000	5,000	2,000/4,000/8,000
Demo 3	10,000	5,000	5,000	10,000	10,000	2,000/4,000/8,000
Demo 4	10,000	10,000	50,000†	10,000	10,000	2,000/4,000/8,000
Demo 5	10,000	10,000	10,000	10,000	50,000†	2,000/4,000/8,000

†The reached via exponential growth starting 2,000 generations ago.

Table S2. False positive rate computed from neutral simulations for varying t_d and demographic history with n = 100 diploid samples (from each population for XP-EHH and XP-nSL).

		$t_d = 2000$	$t_d = 4000$	$t_d = 8000$
iHS	Demo 1	0.013	0.1	0.009
	Demo 3	0.007	0.013	0.007
	Demo 4	0.015	0.018	0.008
nSL	Demo 1	0.01	0.015	0.008
	Demo 3	0.008	0.011	0.007
	Demo 4	0.014	0.021	0.014
XP-EHH	Demo 1	0.013	0.013	0.016
	Demo 2	0.017	0.009	0.015
	Demo 3	0.01	0.011	0.012
	Demo 4	0.012	0.014	0.014
	Demo 5	0.011	0.012	0.013
XP-nSL	Demo 1	0.014	0.011	0.013
	Demo 2	0.019	0.011	0.012
	Demo 3	0.011	0.011	0.012
	Demo 4	0.012	0.012	0.014
	Demo 5	0.011	0.012	0.014

Table S3. False positive rate computed from neutral simulations for varying t_d and demographic history with n = 50 diploid samples (from each population for XP-EHH and XP-nSL).

		$t_d = 2000$	$t_d = 4000$	$t_d = 8000$
iHS	Demo 1	0.012	0.007	0.01
	Demo 3	0.015	0.009	0.009
	Demo 4	0.01	0.005	0.014
nSL	Demo 1	0.014	0.012	0.01
	Demo 3	0.01	0.012	0.011
	Demo 4	0.007	0.013	0.013
XP-EHH	Demo 1	0.015	0.01	0.015
	Demo 2	0.018	0.009	0.013
	Demo 3	0.009	0.014	0.013
	Demo 4	0.011	0.011	0.015
	Demo 5	0.012	0.016	0.02
XP-nSL	Demo 1	0.014	0.01	0.012
	Demo 2	0.018	0.011	0.013
	Demo 3	0.009	0.014	0.014
	Demo 4	0.011	0.013	0.014
	Demo 5	0.012	0.015	0.022

Table S4. False positive rate computed from neutral simulations for varying t_d and demographic history with n = 20 diploid samples (from each population for XP-EHH and XP-nSL).

		$t_d = 2000$	$t_d = 4000$	$t_d = 8000$
iHS	Demo 1	0.001	0.003	0.002
	Demo 3	0.004	0.002	0.003
	Demo 4	0.002	0.0	0.003
nSL	Demo 1	0.001	0.002	0.0
	Demo 3	0.002	0.003	0.002
	Demo 4	0.0	0.0	0.002
XP-EHH	Demo 1	0.019	0.012	0.015
	Demo 2	0.017	0.006	0.012
	Demo 3	0.011	0.013	0.013
	Demo 4	0.008	0.014	0.013
	Demo 5	0.008	0.013	0.017
XP-nSL	Demo 1	0.018	0.014	0.014
	Demo 2	0.016	0.011	0.011
	Demo 3	0.01	0.013	0.014
	Demo 4	0.009	0.013	0.013
	Demo 5	0.009	0.012	0.02

Table S5. False positive rate computed from neutral simulations for varying t_d and demographic history with n = 10 diploid samples (from each population for XP-EHH and XP-nSL).

		$t_d = 2000$	$t_d = 4000$	$t_d = 8000$
iHS	Demo 1	0.0	0.0	0.0
	Demo 3	0.0	0.0	0.0
	Demo 4	0.0	0.0	0.0
nSL	Demo 1	0.0	0.0	0.0
	Demo 3	0.0	0.0	0.0
	Demo 4	0.0	0.0	0.0
XP-EHH	Demo 1	0.014	0.013	0.014
	Demo 2	0.01	0.008	0.016
	Demo 3	0.01	0.012	0.015
	Demo 4	0.01	0.014	0.012
	Demo 5	0.008	0.019	0.012
XP-nSL	Demo 1	0.012	0.013	0.016
	Demo 2	0.011	0.006	0.013
	Demo 3	0.01	0.013	0.015
	Demo 4	0.01	0.014	0.012
	Demo 5	0.009	0.02	0.01

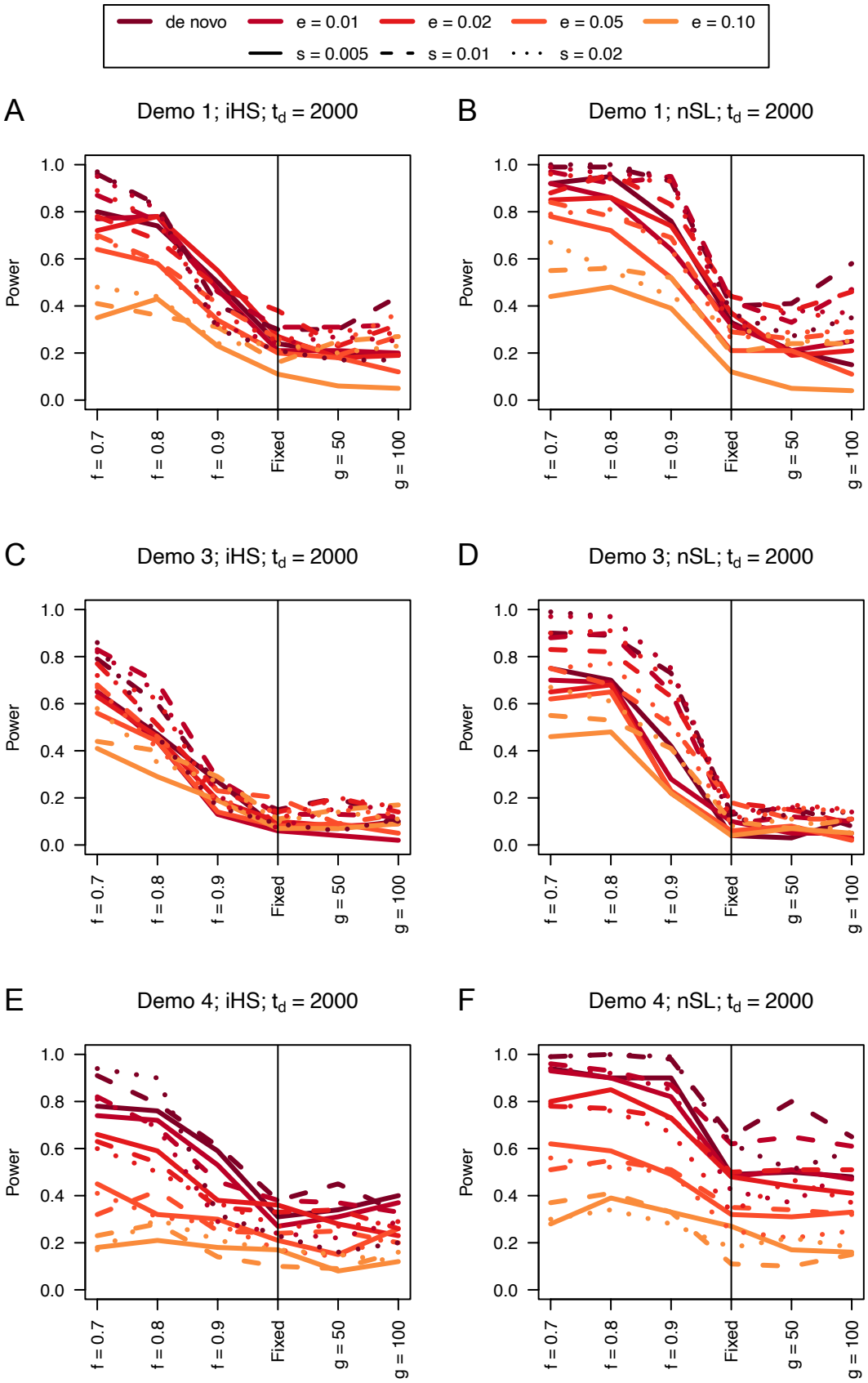

de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1; iHS; t_d = 2000
B
Demo 1; nSL; t_d = 2000
C
Demo 3; iHS; t_d = 2000
D
Demo 3; nSL; t_d = 2000
E
Demo 4; iHS; t_d = 2000
F
Demo 4; nSL; t_d = 2000
Power
0.0
0.2
0.4
0.6
0.8
1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S1. Power curves for unphased implementations of iHS (A, C, and E) and nSL (B, D, and F) under demographic histories Demo 1 (A and B), Demo 3 (C and D), and Demo 4 (E and F) with n = 100 diploid samples. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 2000$ is the time in generations since the two populations diverged.

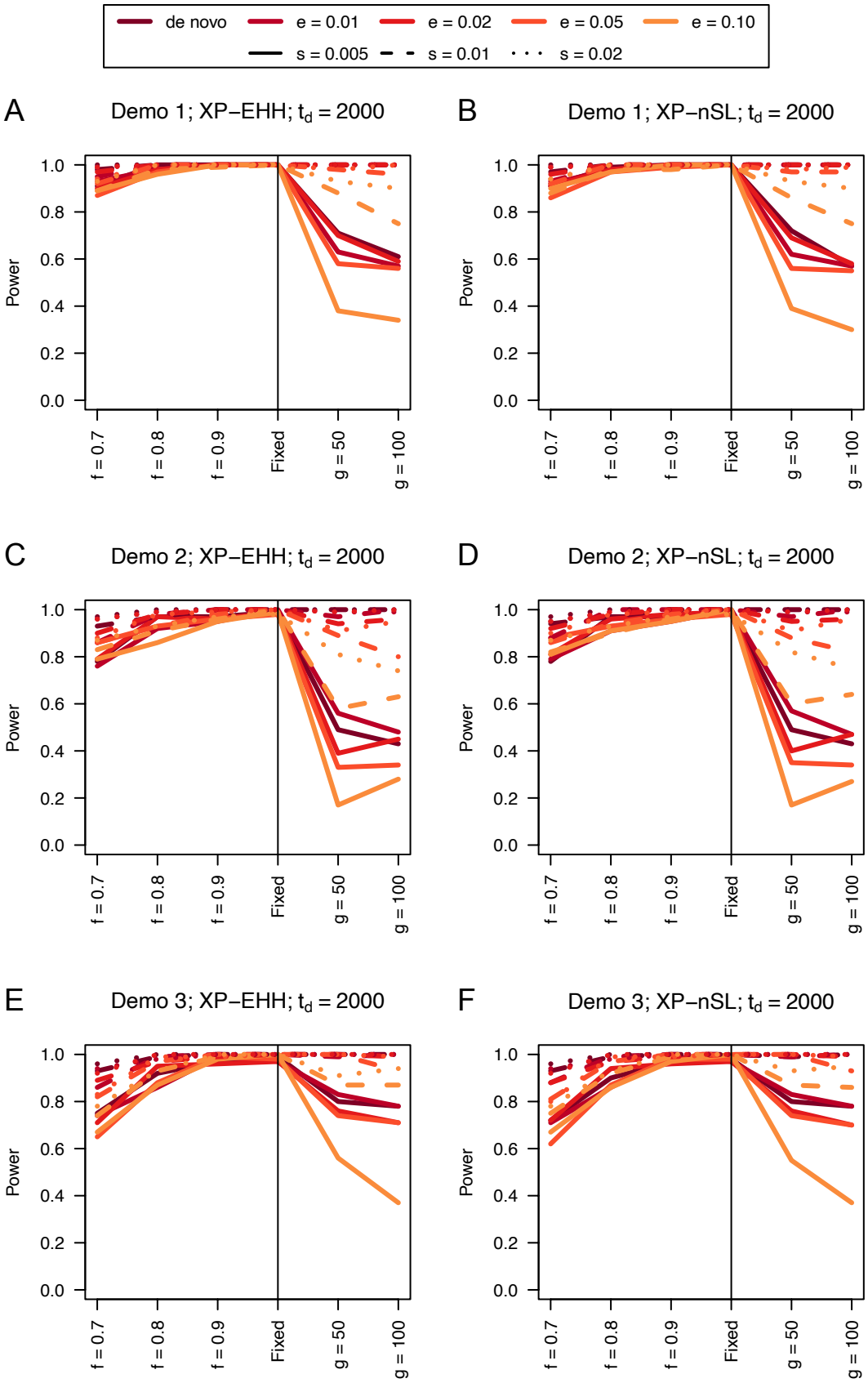

de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1; XP−EHH; t_d = 2000
B
Demo 1; XP−nSL; t_d = 2000
C
Demo 2; XP−EHH; t_d = 2000
D
Demo 2; XP−nSL; t_d = 2000
E
Demo 3; XP−EHH; t_d = 2000
F
Demo 3; XP−nSL; t_d = 2000
Power
0.0
0.2
0.4
0.6
0.8
1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S2. Power curves for unphased implementations of XP-EHH (A, C, and E) and XP-nSL (B, D, and F) under demographic histories Demo 1 (A and B), Demo 2 (C and D), and Demo 3 (E and F) with n = 100 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 2000$ is the time in generations since the two populations diverged.

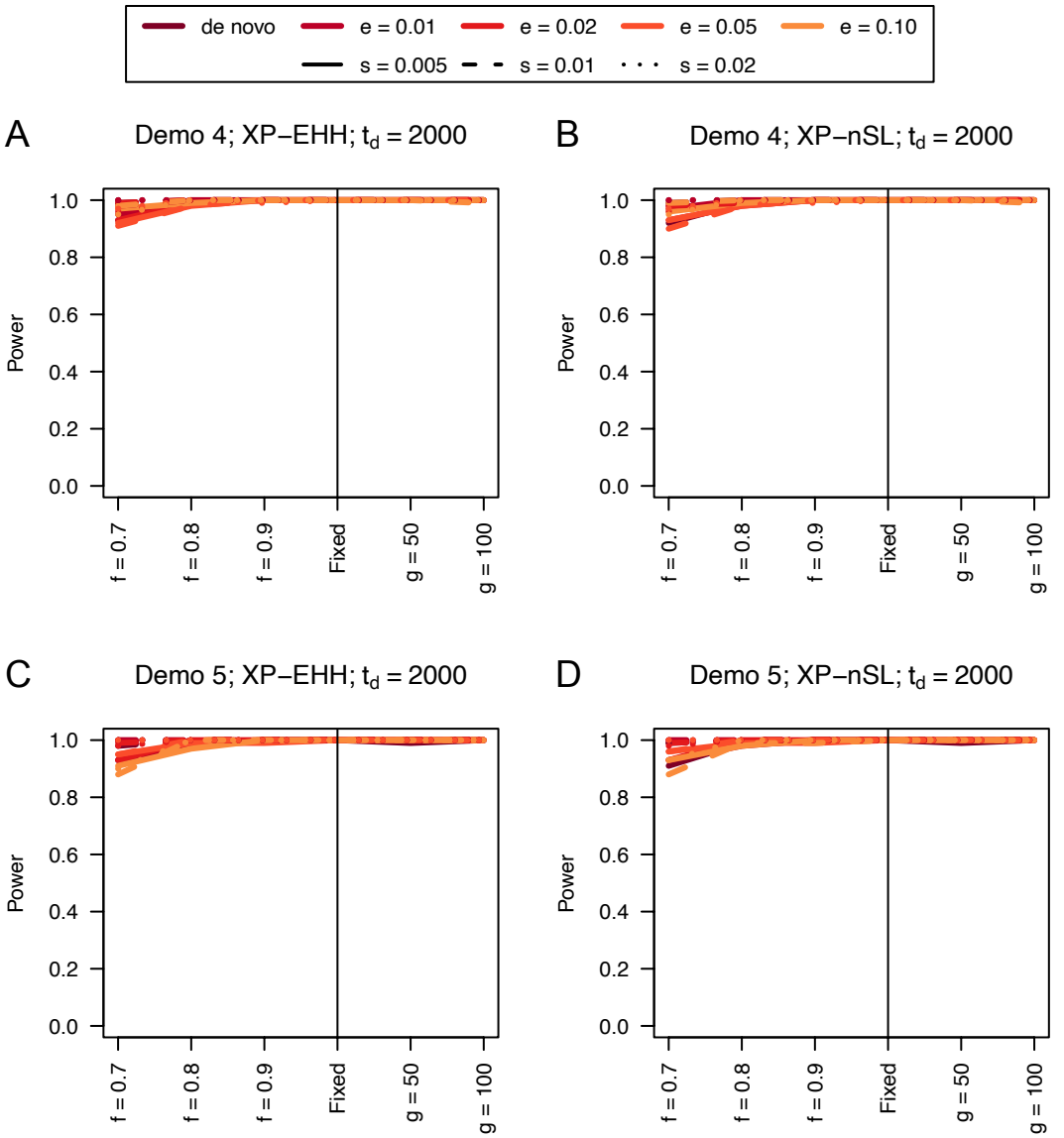


Figure S3. Power curves for unphased implementations of XP-EHH (A and C) and XP-nSL (B and D) under demographic histories Demo 4 (A and B), and Demo 5 (C and D) with n = 100 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 2000$ is the time in generations since the two populations diverged.

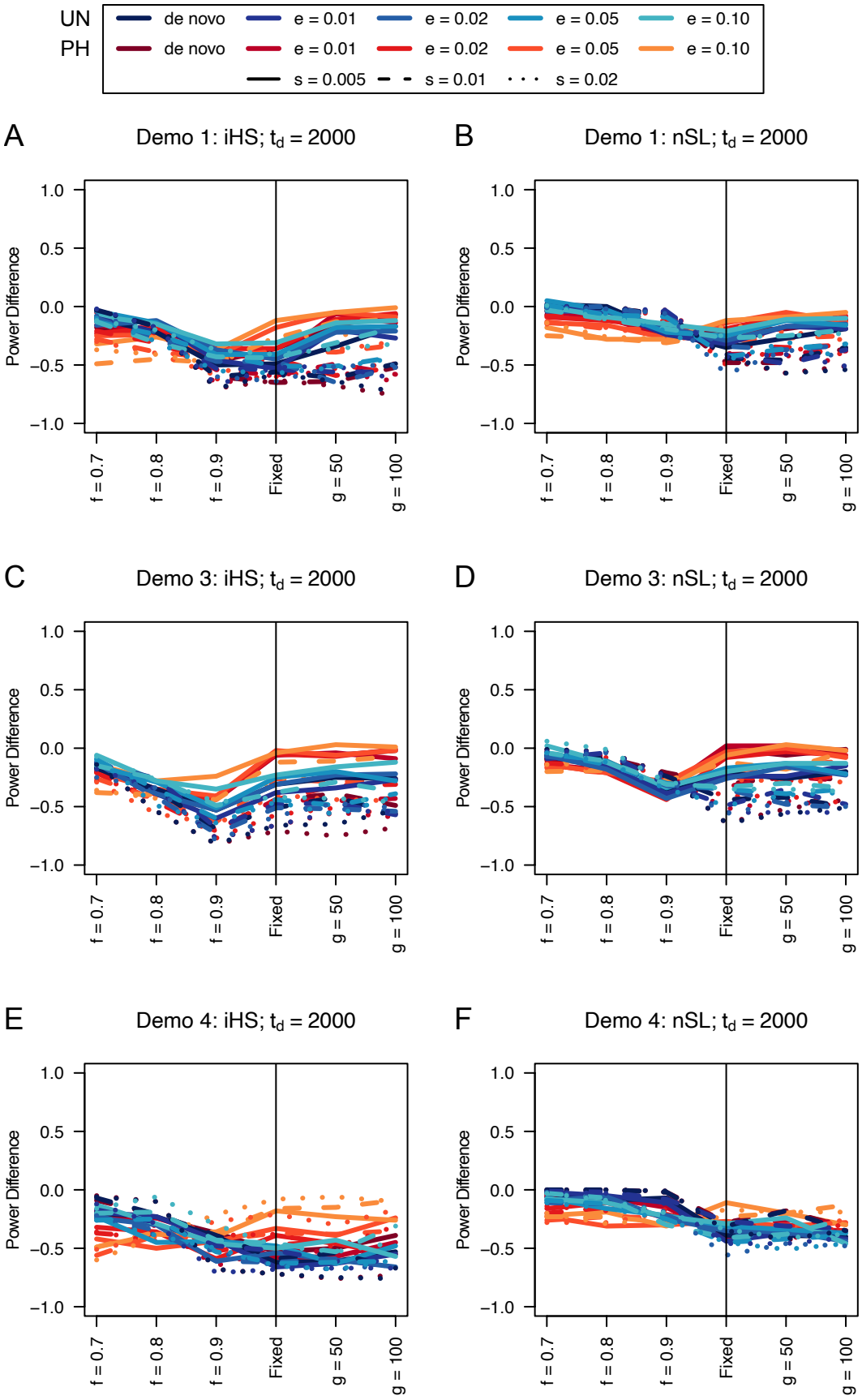

UN
PH
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1: iHS; t_d = 2000
B
Demo 1: nSL; t_d = 2000
C
Demo 3: iHS; t_d = 2000
D
Demo 3: nSL; t_d = 2000
E
Demo 4: iHS; t_d = 2000
F
Demo 4: nSL; t_d = 2000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S4. Power difference between unphased implementations of iHS (A, C, and E) and nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 3 (C and D), and Demo 4 (E and F) with n = 100 diploid samples. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 2000$ is the time in generations since the two populations diverged.

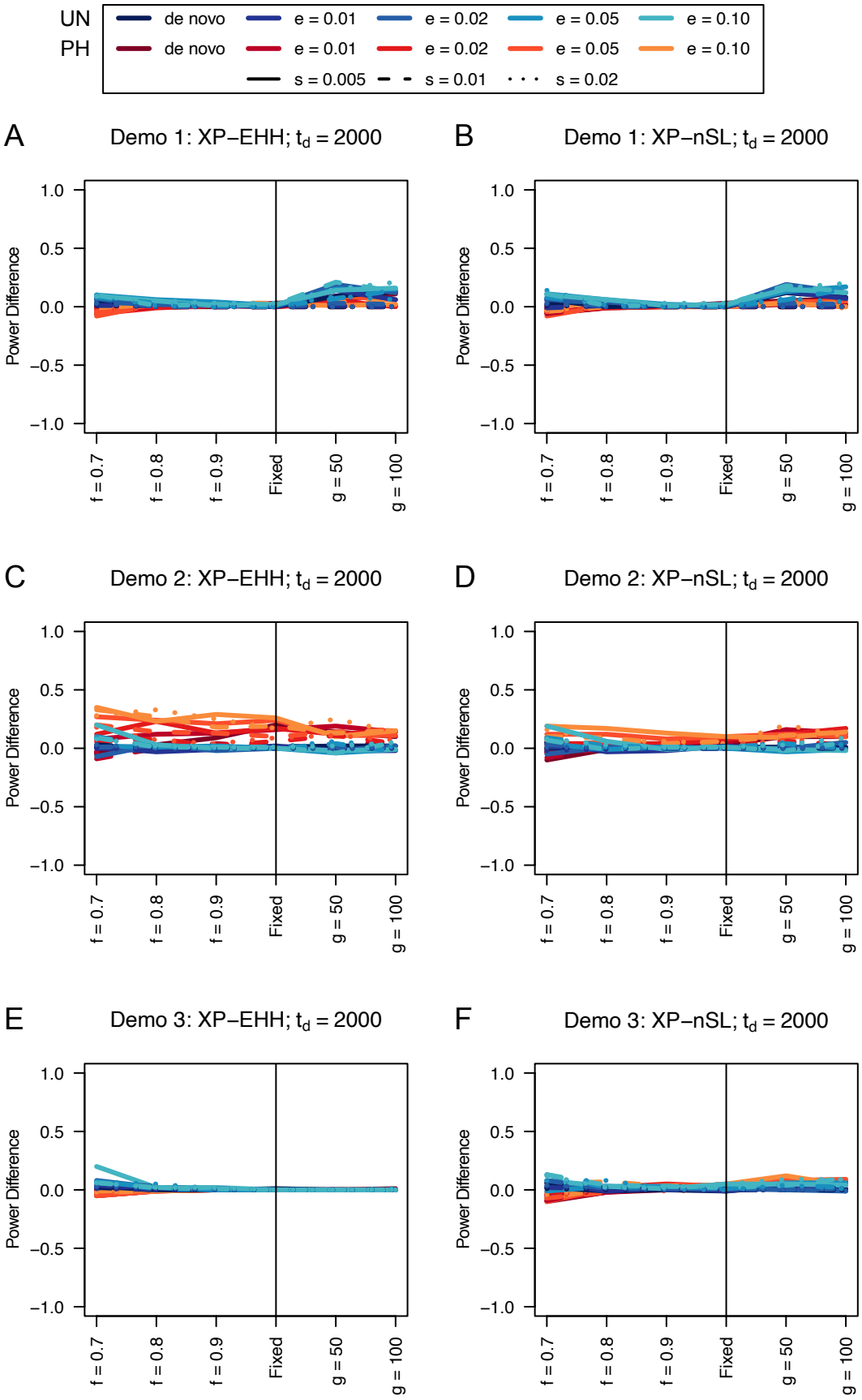

UN
PH
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1: XP–EHH; t_d = 2000
B
Demo 1: XP–nSL; t_d = 2000
C
Demo 2: XP–EHH; t_d = 2000
D
Demo 2: XP–nSL; t_d = 2000
E
Demo 3: XP–EHH; t_d = 2000
F
Demo 3: XP–nSL; t_d = 2000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S5. Power difference between unphased implementations of XP-EHH (A, C, and E) and XP-nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 2 (C and D), and Demo 3 (E and F) with n = 100 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 2000$ is the time in generations since the two populations diverged.

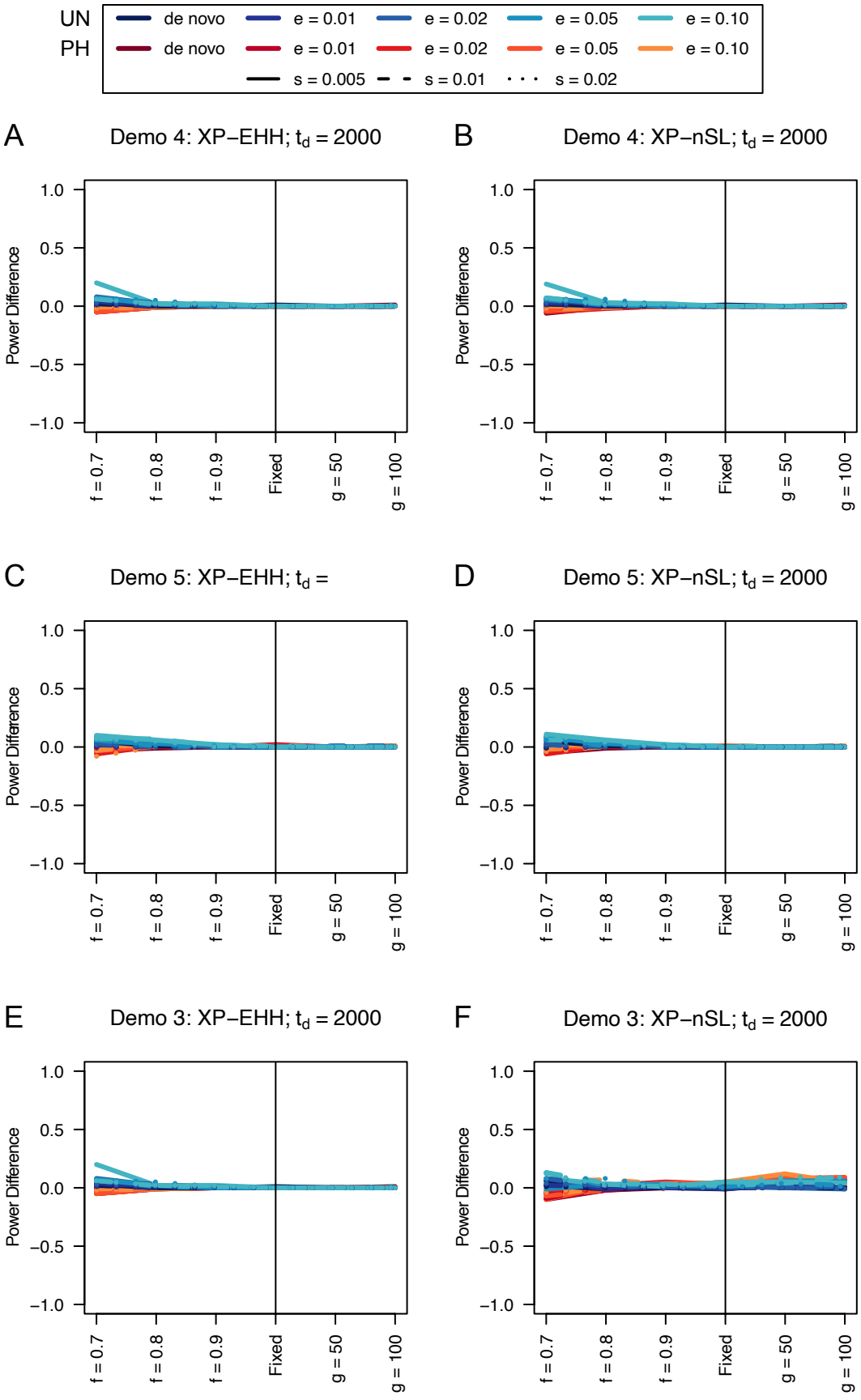

UN
PH
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 4: XP–EHH; t_d = 2000
B
Demo 4: XP–nSL; t_d = 2000
C
Demo 5: XP–EHH; t_d =
D
Demo 5: XP–nSL; t_d = 2000
E
Demo 3: XP–EHH; t_d = 2000
F
Demo 3: XP–nSL; t_d = 2000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S6. Power difference between unphased implementations of XP-EHH (A and C) and XP-nSL (B and D) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 4 (A and B), and Demo 5 (C and D) with n = 100 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 2000$ is the time in generations since the two populations diverged.

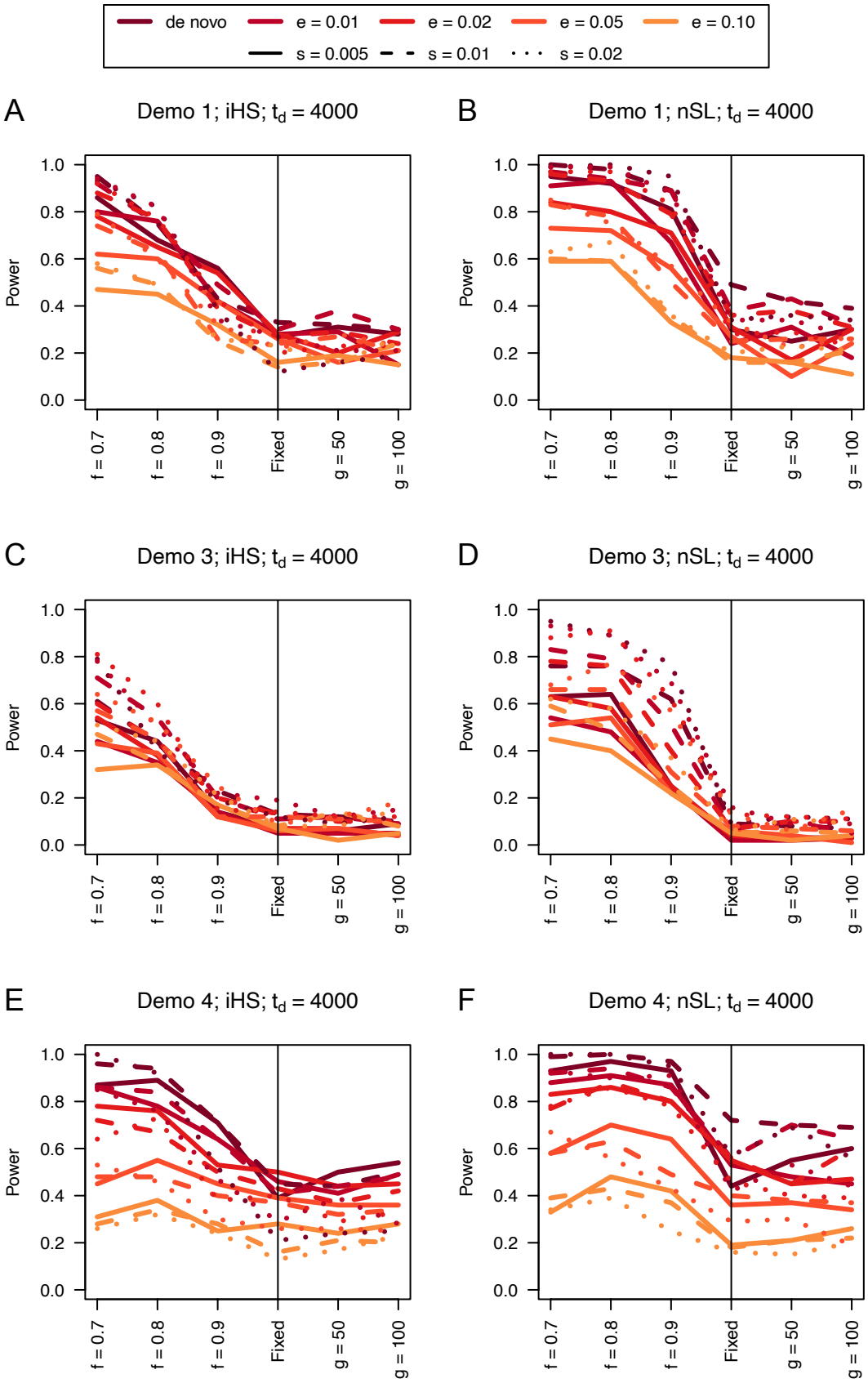

de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1; iHS; t_d = 4000
B
Demo 1; nSL; t_d = 4000
C
Demo 3; iHS; t_d = 4000
D
Demo 3; nSL; t_d = 4000
E
Demo 4; iHS; t_d = 4000
F
Demo 4; nSL; t_d = 4000
Power
0.0
0.2
0.4
0.6
0.8
1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S7. Power curves for unphased implementations of iHS (A, C, and E) and nSL (B, D, and F) under demographic histories Demo 1 (A and B), Demo 3 (C and D), and Demo 4 (E and F) with n = 100 diploid samples. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 4000$ is the time in generations since the two populations diverged.

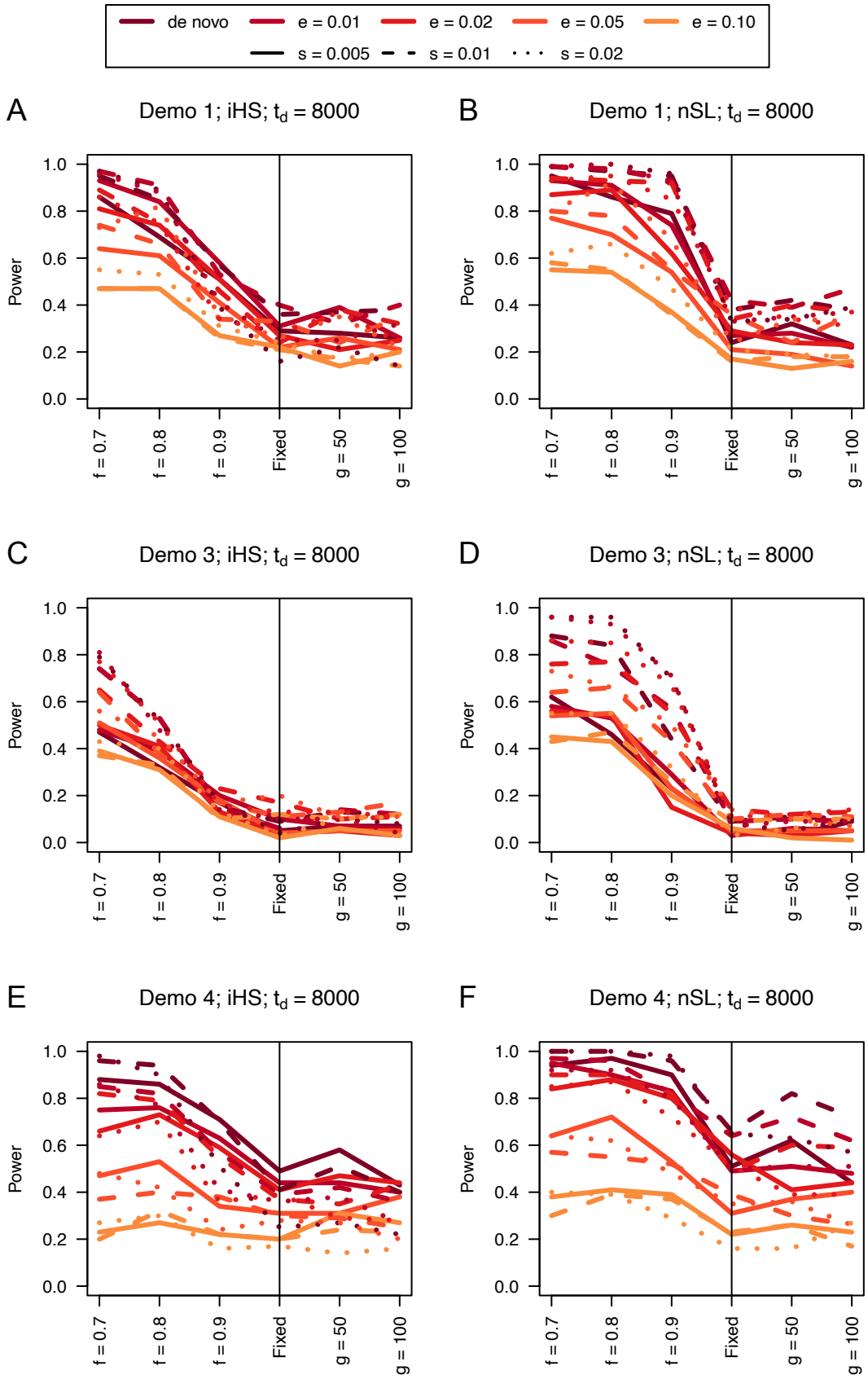

de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1; iHS; t_d = 8000
B
Demo 1; nSL; t_d = 8000
C
Demo 3; iHS; t_d = 8000
D
Demo 3; nSL; t_d = 8000
E
Demo 4; iHS; t_d = 8000
F
Demo 4; nSL; t_d = 8000
Power
0.0
0.2
0.4
0.6
0.8
1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S8. Power curves for unphased implementations of iHS (A, C, and E) and nSL (B, D, and F) under demographic histories Demo 1 (A and B), Demo 3 (C and D), and Demo 4 (E and F) with n = 100 diploid samples. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 8000$ is the time in generations since the two populations diverged.

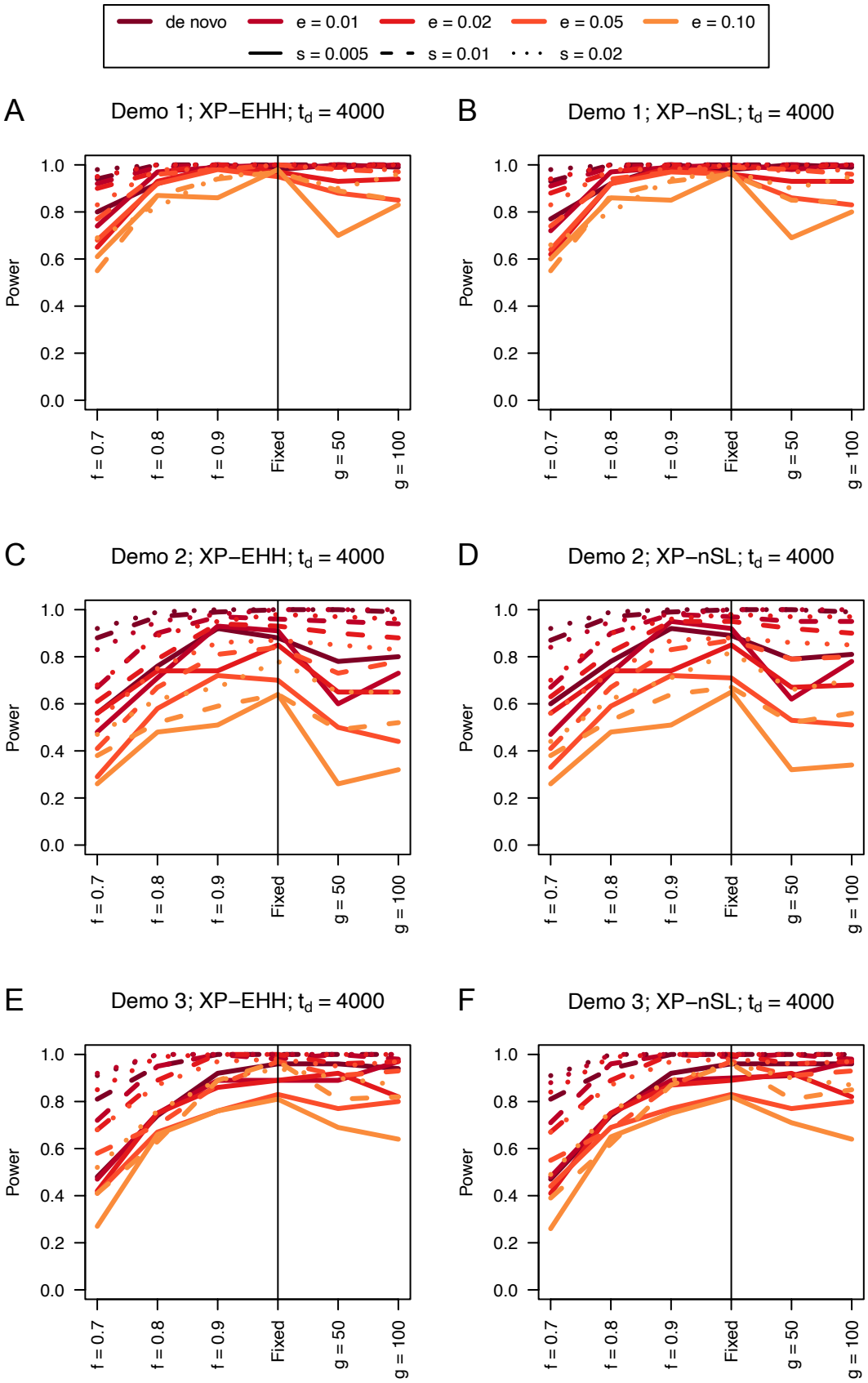

de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1; XP−EHH; t_d = 4000
B
Demo 1; XP−nSL; t_d = 4000
C
Demo 2; XP−EHH; t_d = 4000
D
Demo 2; XP−nSL; t_d = 4000
E
Demo 3; XP−EHH; t_d = 4000
F
Demo 3; XP−nSL; t_d = 4000
Power
0.0
0.2
0.4
0.6
0.8
1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S9. Power difference between unphased implementations of XP-EHH (A, C, and E) and XP-nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 2 (C and D), and Demo 3 (E and F) with n = 100 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 4000$ is the time in generations since the two populations diverged.

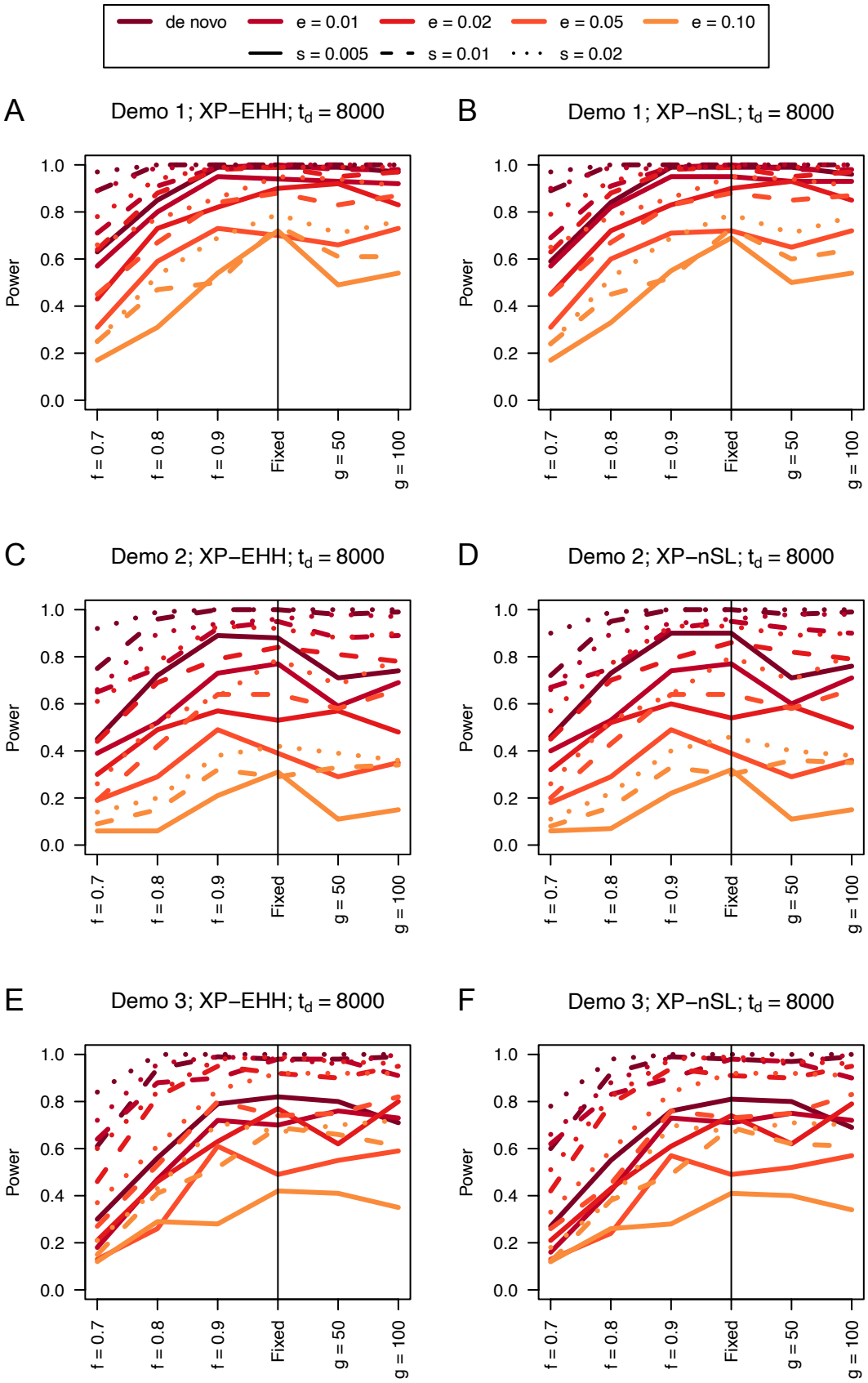

de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1; XP−EHH; t_d = 8000
B
Demo 1; XP−nSL; t_d = 8000
C
Demo 2; XP−EHH; t_d = 8000
D
Demo 2; XP−nSL; t_d = 8000
E
Demo 3; XP−EHH; t_d = 8000
F
Demo 3; XP−nSL; t_d = 8000
Power
0.0
0.2
0.4
0.6
0.8
1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S10. Power difference between unphased implementations of XP-EHH (A, C, and E) and XP-nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 2 (C and D), and Demo 3 (E and F) with n = 100 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 8000$ is the time in generations since the two populations diverged.

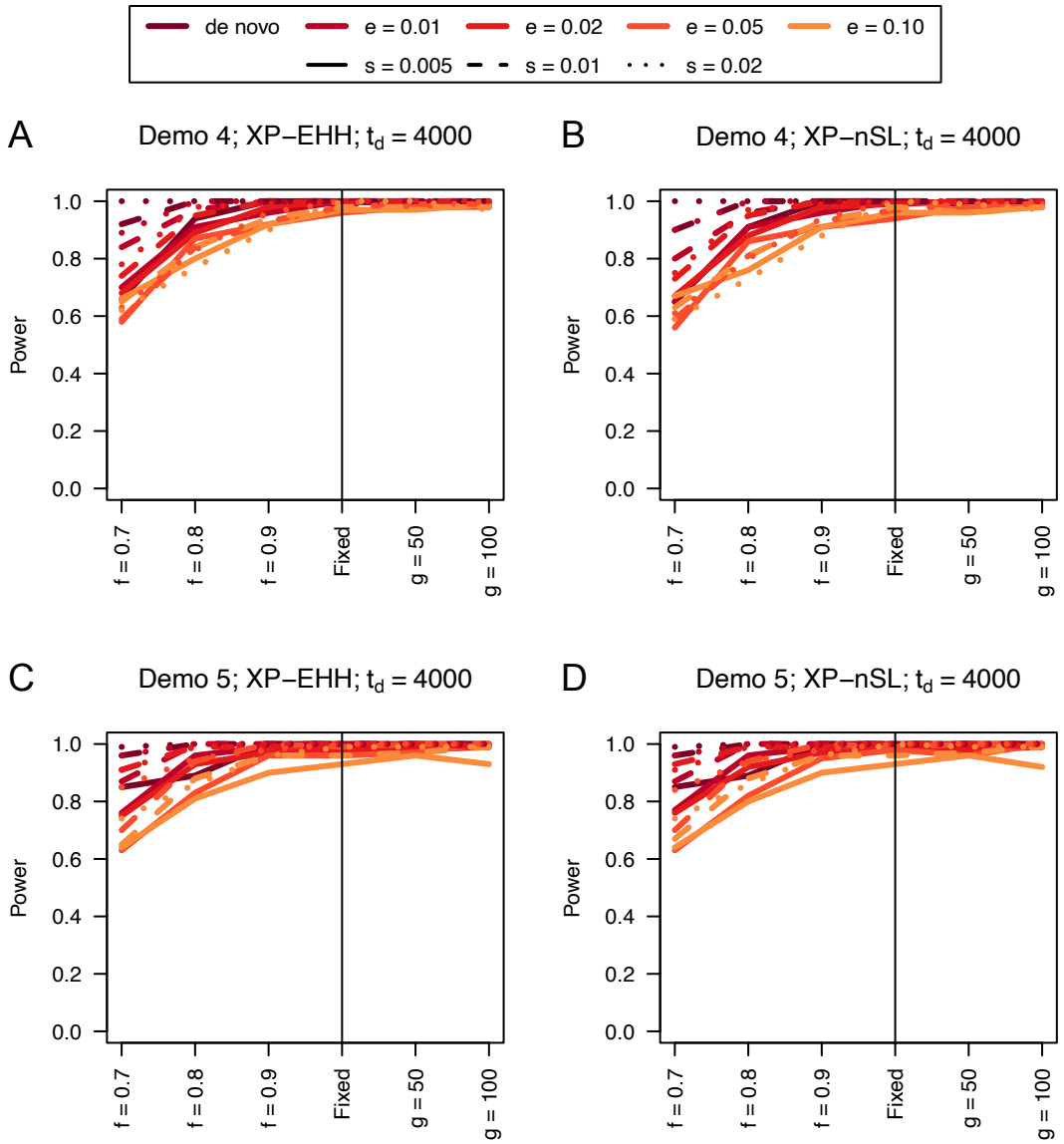


Figure S11. Power curves for unphased implementations of XP-EHH (A and C) and XP-nSL (B and D) under demographic histories Demo 4 (A and B), and Demo 5 (C and D) with n = 100 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 4000$ is the time in generations since the two populations diverged.

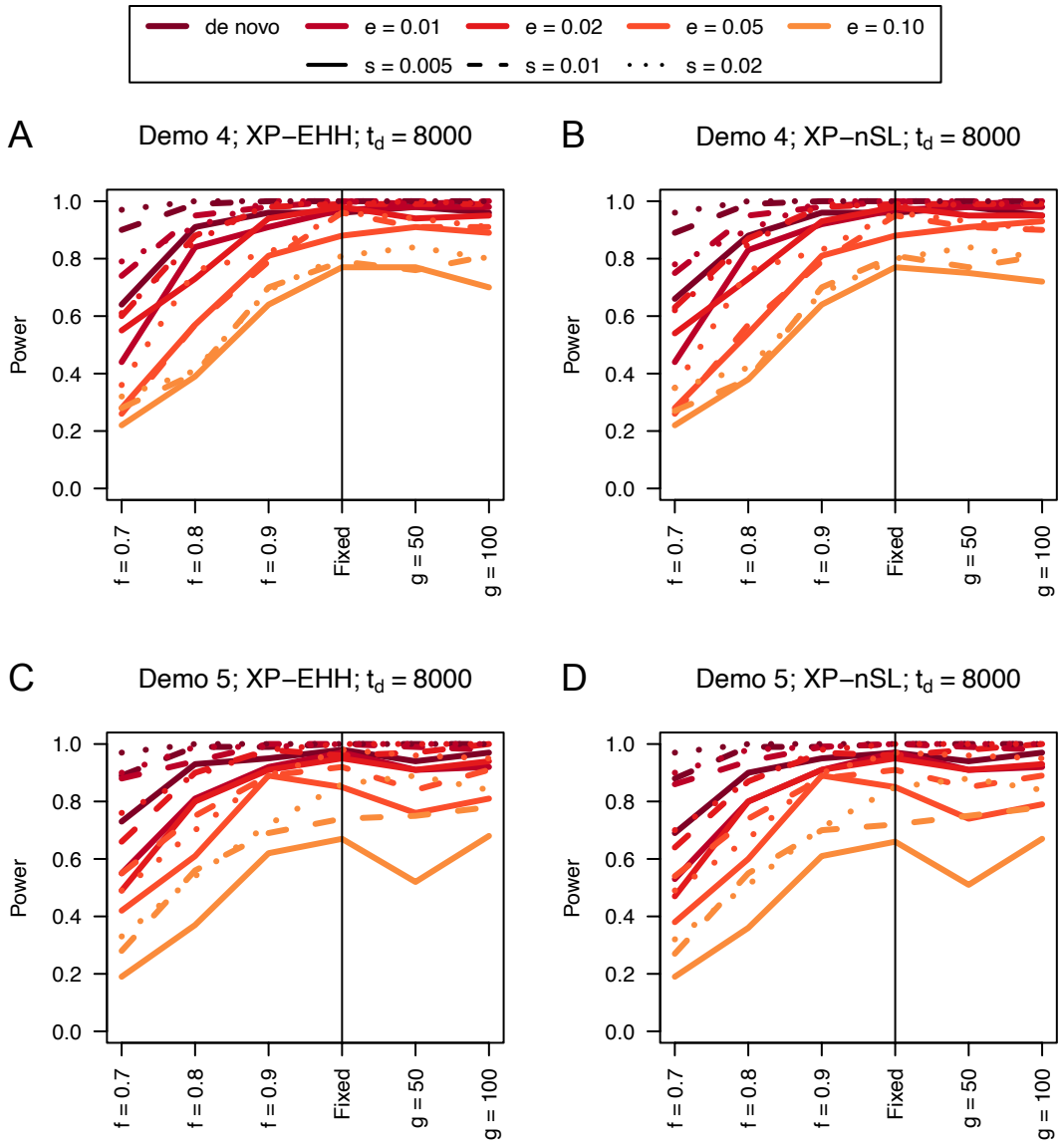


Figure S12. Power curves for unphased implementations of XP-EHH (A and C) and XP-nSL (B and D) under demographic histories Demo 4 (A and B), and Demo 5 (C and D) with n = 100 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 8000$ is the time in generations since the two populations diverged.

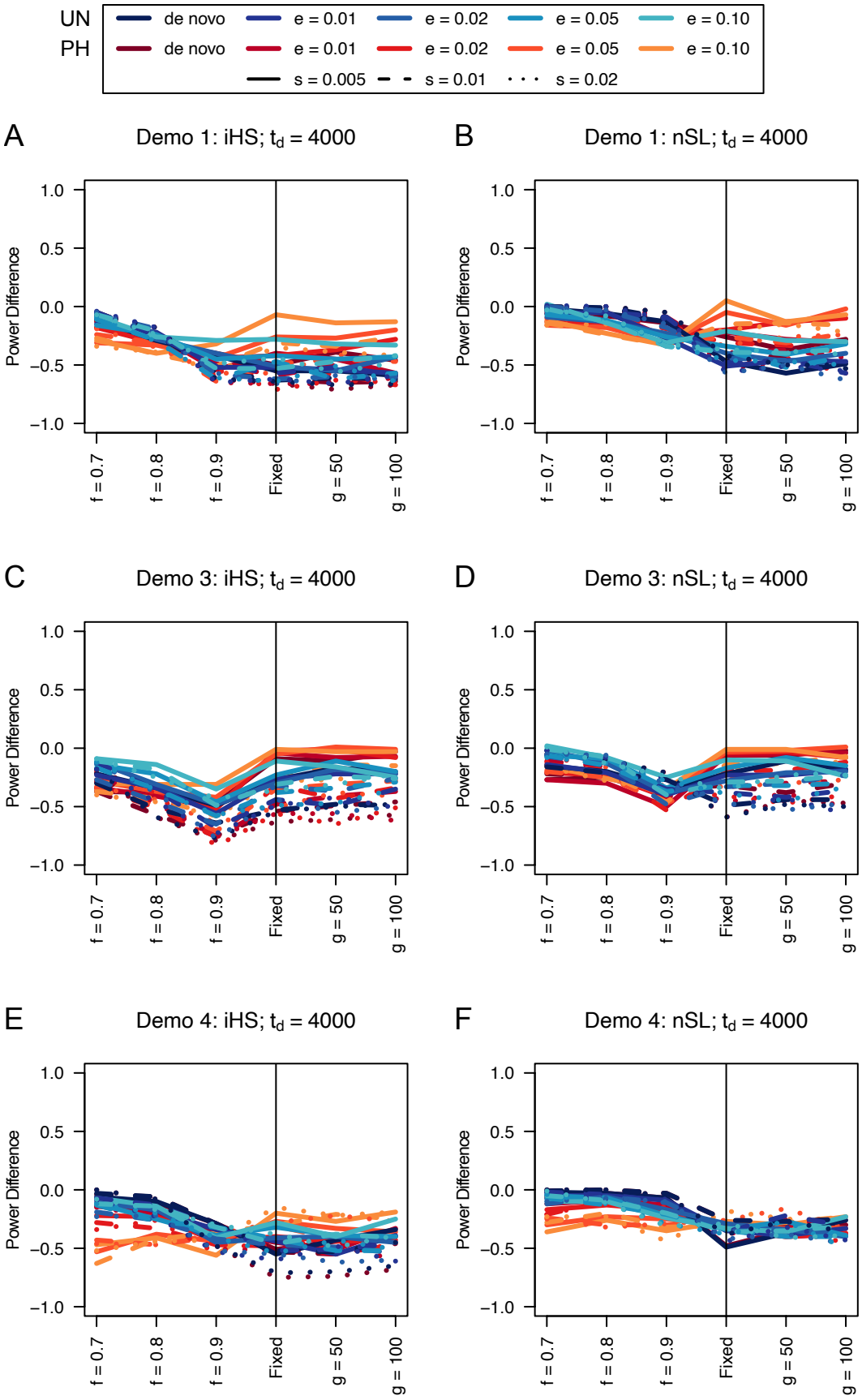

UN
PH
de novo
de novo
e = 0.01
e = 0.01
e = 0.02
e = 0.02
e = 0.05
e = 0.05
e = 0.10
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1: iHS; t_d = 4000
B
Demo 1: nSL; t_d = 4000
C
Demo 3: iHS; t_d = 4000
D
Demo 3: nSL; t_d = 4000
E
Demo 4: iHS; t_d = 4000
F
Demo 4: nSL; t_d = 4000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S13. Power difference between unphased implementations of iHS (A, C, and E) and nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 3 (C and D), and Demo 4 (E and F) with n = 100 diploid samples. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 4000$ is the time in generations since the two populations diverged.

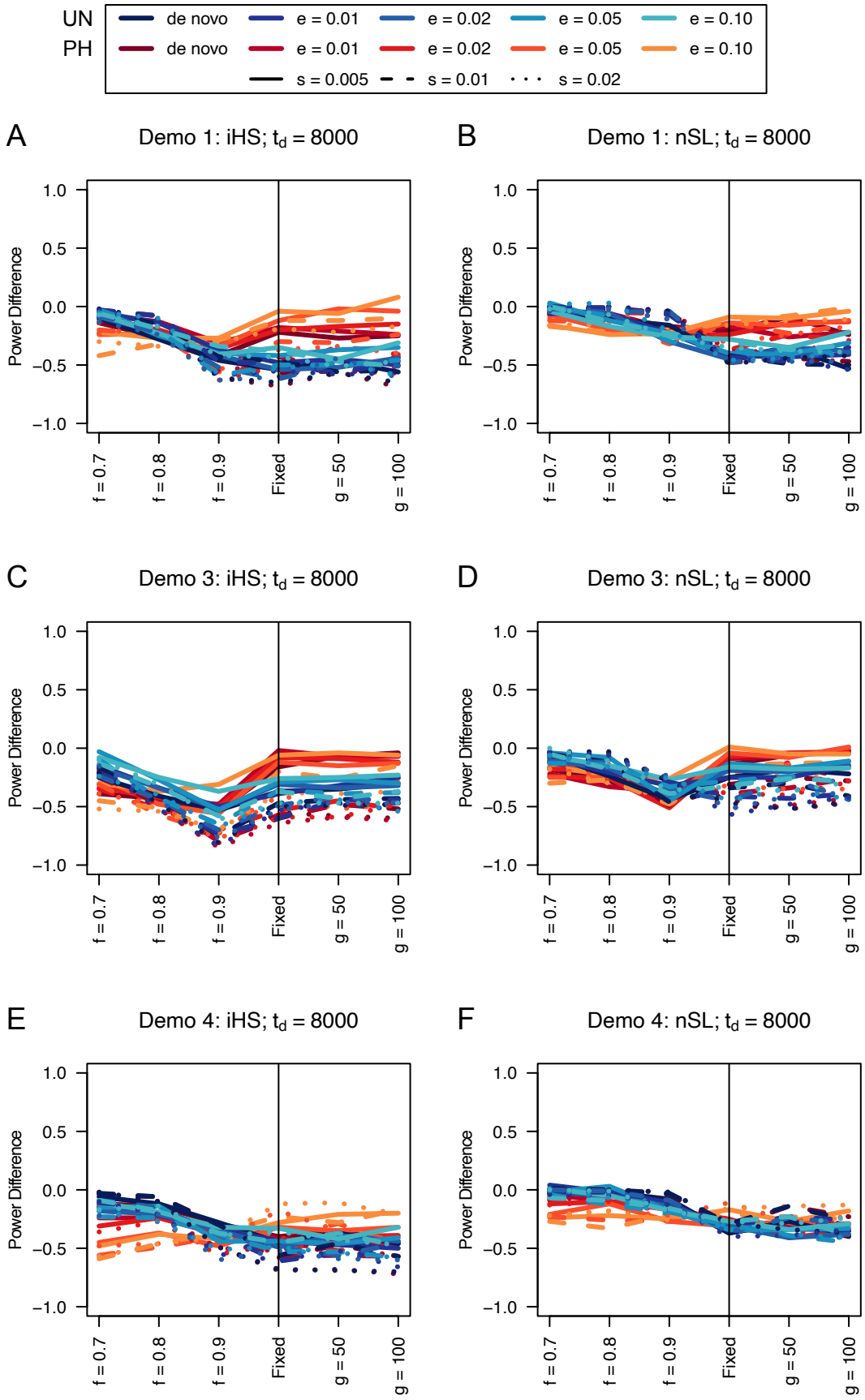

UN
PH
de novo
de novo
e = 0.01
e = 0.01
e = 0.02
e = 0.02
e = 0.05
e = 0.05
e = 0.10
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1: iHS; t_d = 8000
B
Demo 1: nSL; t_d = 8000
C
Demo 3: iHS; t_d = 8000
D
Demo 3: nSL; t_d = 8000
E
Demo 4: iHS; t_d = 8000
F
Demo 4: nSL; t_d = 8000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S14. Power difference between unphased implementations of iHS (A, C, and E) and nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 3 (C and D), and Demo 4 (E and F) with n = 100 diploid samples. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 8000$ is the time in generations since the two populations diverged.

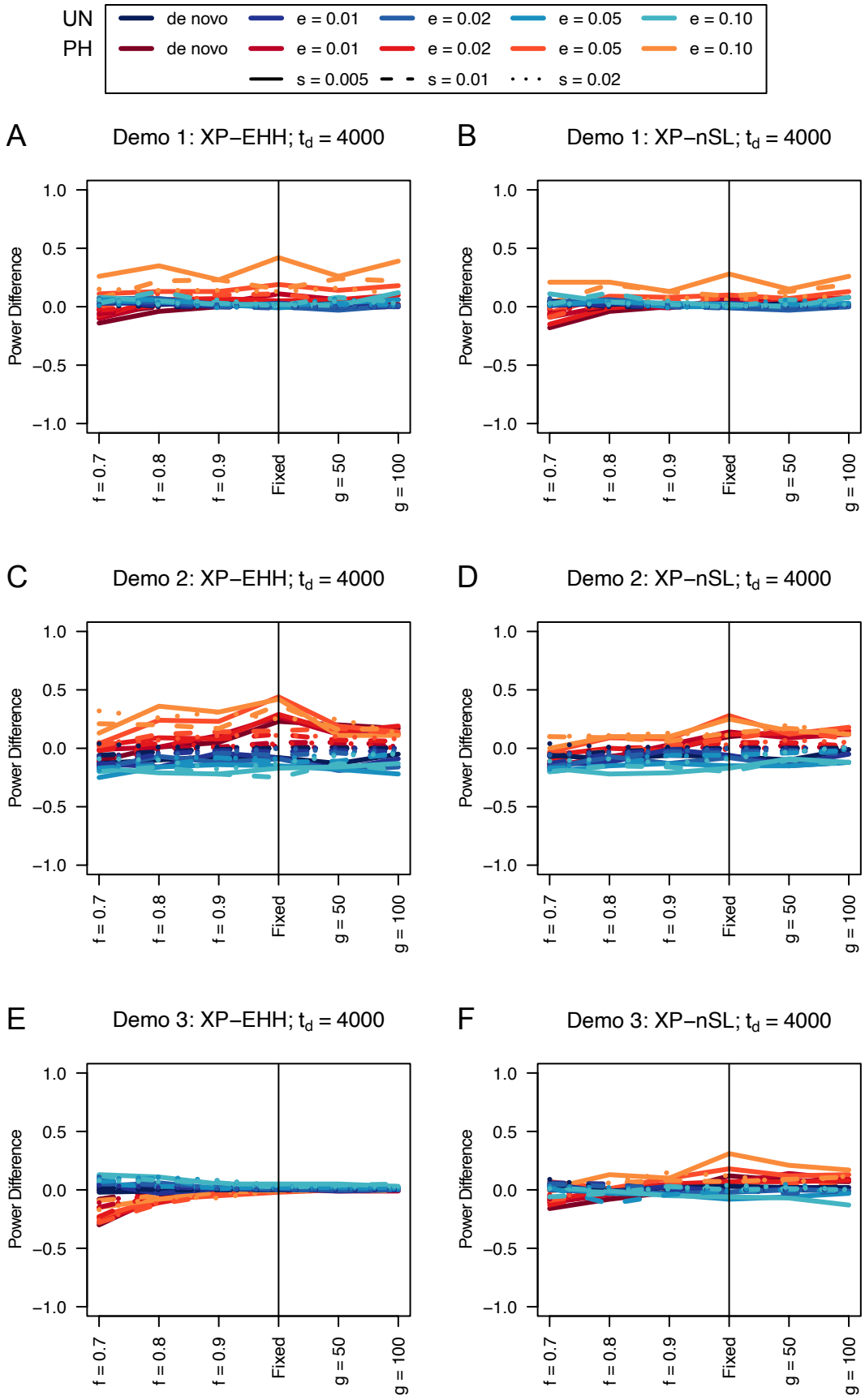

UN
PH
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1: XP–EHH; t_d = 4000
B
Demo 1: XP–nSL; t_d = 4000
C
Demo 2: XP–EHH; t_d = 4000
D
Demo 2: XP–nSL; t_d = 4000
E
Demo 3: XP–EHH; t_d = 4000
F
Demo 3: XP–nSL; t_d = 4000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S15. Power difference between unphased implementations of XP-EHH (A, C, and E) and XP-nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 2 (C and D), and Demo 3 (E and F) with n = 100 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 4000$ is the time in generations since the two populations diverged.

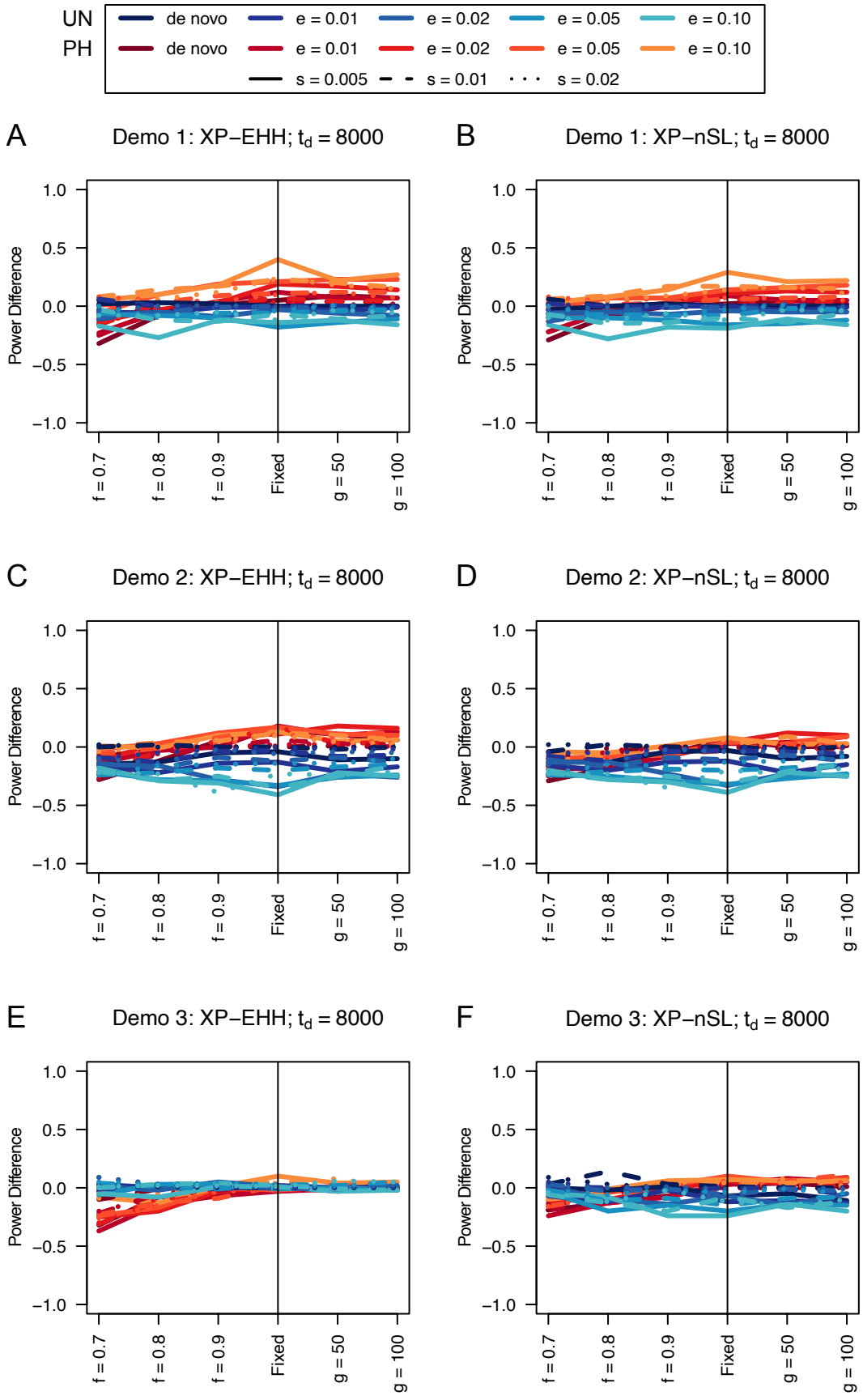

UN
PH
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1: XP–EHH; t_d = 8000
B
Demo 1: XP–nSL; t_d = 8000
C
Demo 2: XP–EHH; t_d = 8000
D
Demo 2: XP–nSL; t_d = 8000
E
Demo 3: XP–EHH; t_d = 8000
F
Demo 3: XP–nSL; t_d = 8000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S16. Power difference between unphased implementations of XP-EHH (A, C, and E) and XP-nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 2 (C and D), and Demo 3 (E and F) with n = 100 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 8000$ is the time in generations since the two populations diverged.

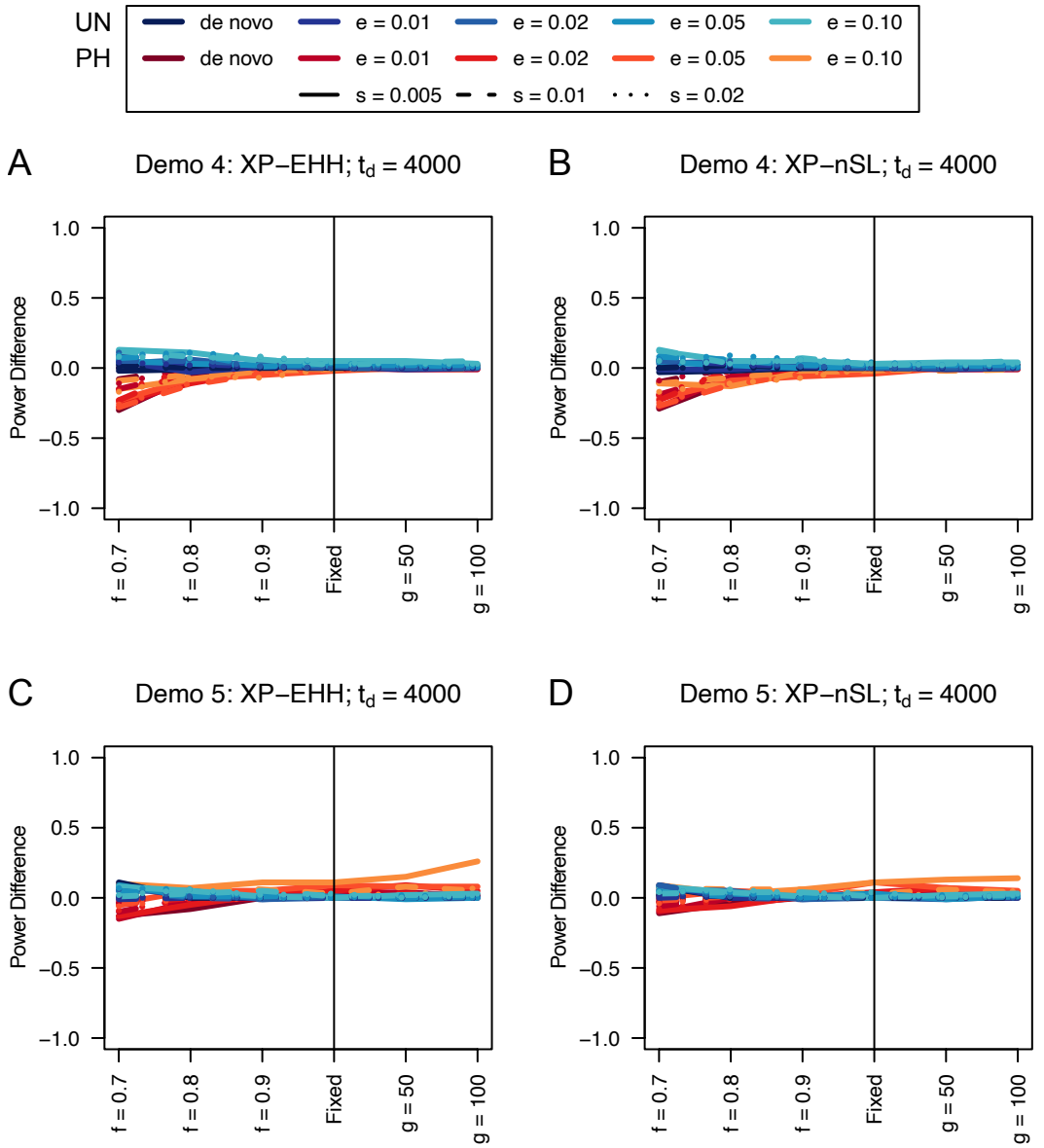


Figure S17. Power difference between unphased implementations of XP-EHH (A and C) and XP-nSL (B and D) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 4 (A and B), and Demo 5 (C and D) with n = 100 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 4000$ is the time in generations since the two populations diverged.

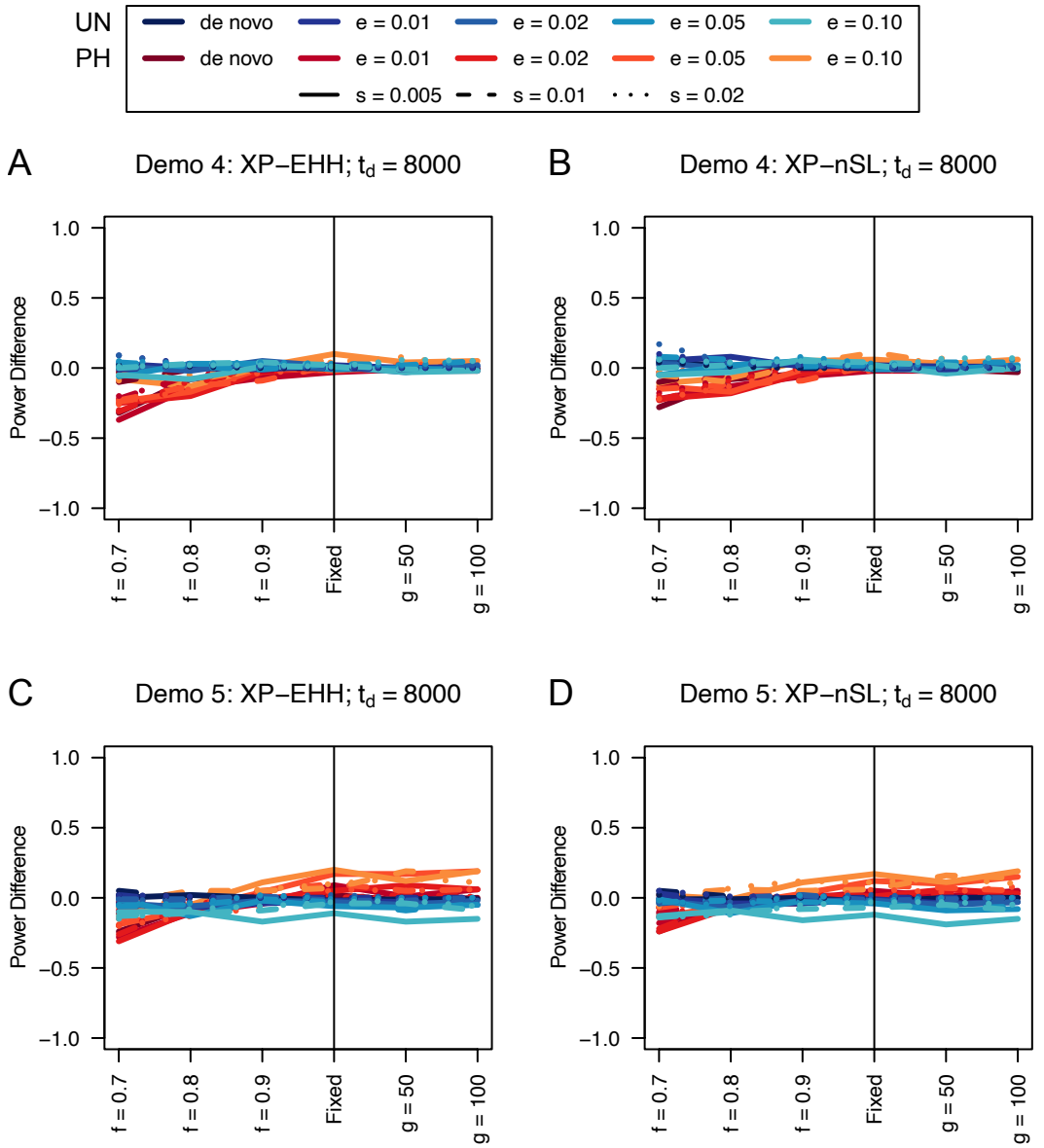


Table S18. Power difference between unphased implementations of XP-EHH (A and C) and XP-nSL (B and D) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 4 (A and B), and Demo 5 (C and D) with n = 100 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 8000$ is the time in generations since the two populations diverged.

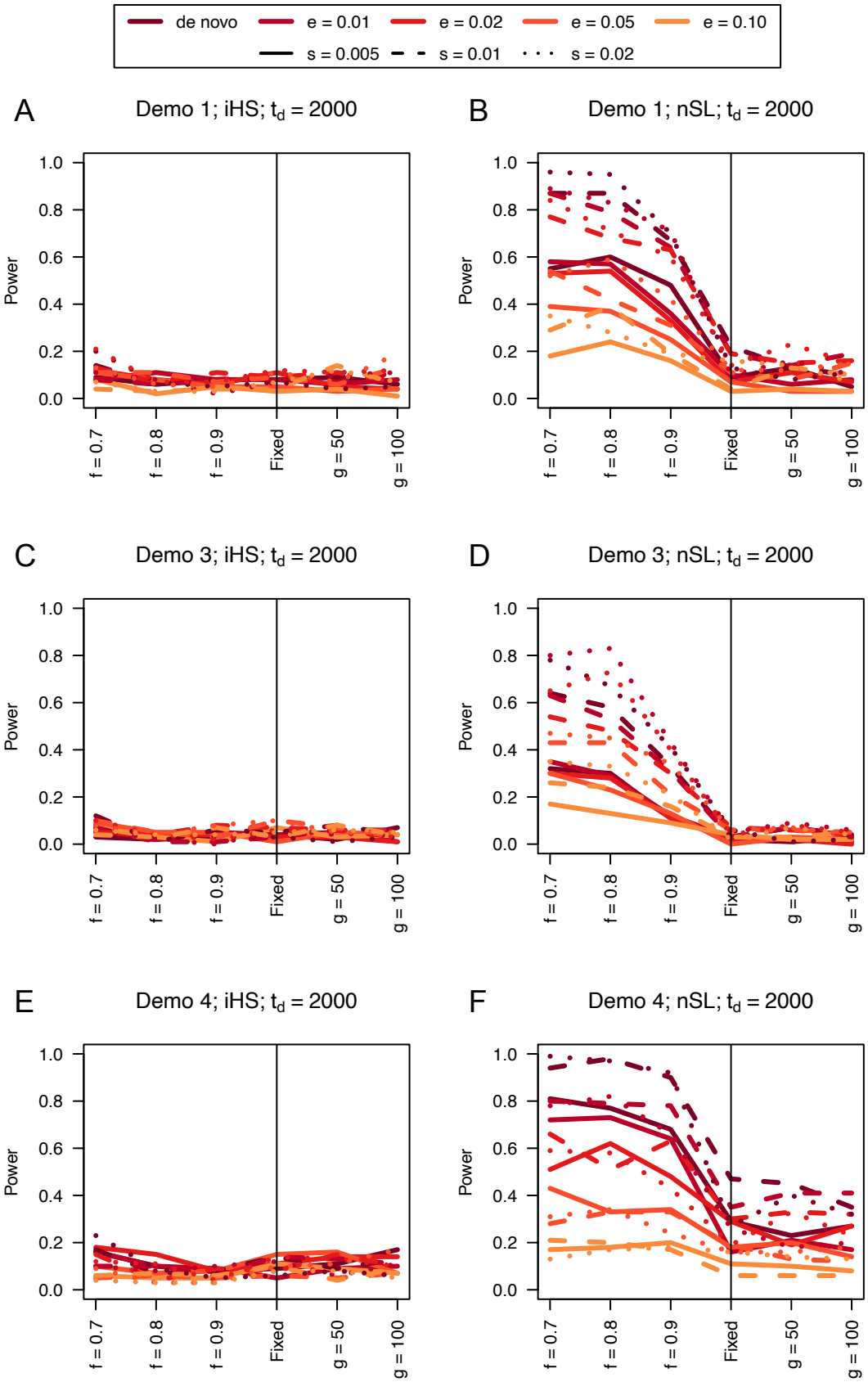

de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1; iHS; t_d = 2000
B
Demo 1; nSL; t_d = 2000
C
Demo 3; iHS; t_d = 2000
D
Demo 3; nSL; t_d = 2000
E
Demo 4; iHS; t_d = 2000
F
Demo 4; nSL; t_d = 2000
Power
0.0
0.2
0.4
0.6
0.8
1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S19. Power curves for unphased implementations of iHS (A, C, and E) and nSL (B, D, and F) under demographic histories Demo 1 (A and B), Demo 3 (C and D), and Demo 4 (E and F) with n = 50 diploid samples. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 2000$ is the time in generations since the two populations diverged.

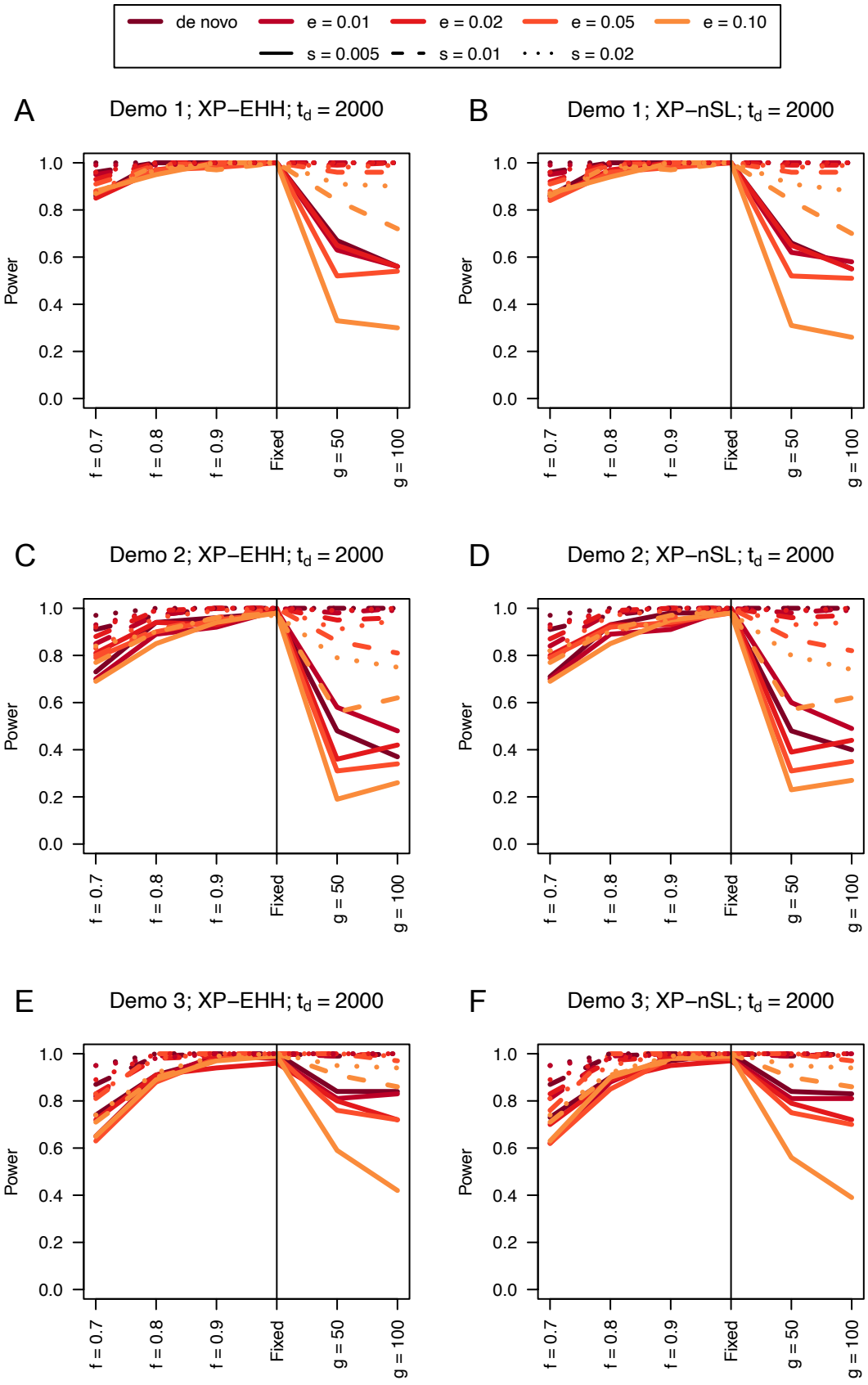

de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1; XP−EHH; t_d = 2000
B
Demo 1; XP−nSL; t_d = 2000
C
Demo 2; XP−EHH; t_d = 2000
D
Demo 2; XP−nSL; t_d = 2000
E
Demo 3; XP−EHH; t_d = 2000
F
Demo 3; XP−nSL; t_d = 2000
Power
0.0
0.2
0.4
0.6
0.8
1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S20. Power curves for unphased implementations of XP-EHH (A, C, and E) and XP-nSL (B, D, and F) under demographic histories Demo 1 (A and B), Demo 2 (C and D), and Demo 3 (E and F) with n = 50 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 2000$ is the time in generations since the two populations diverged.

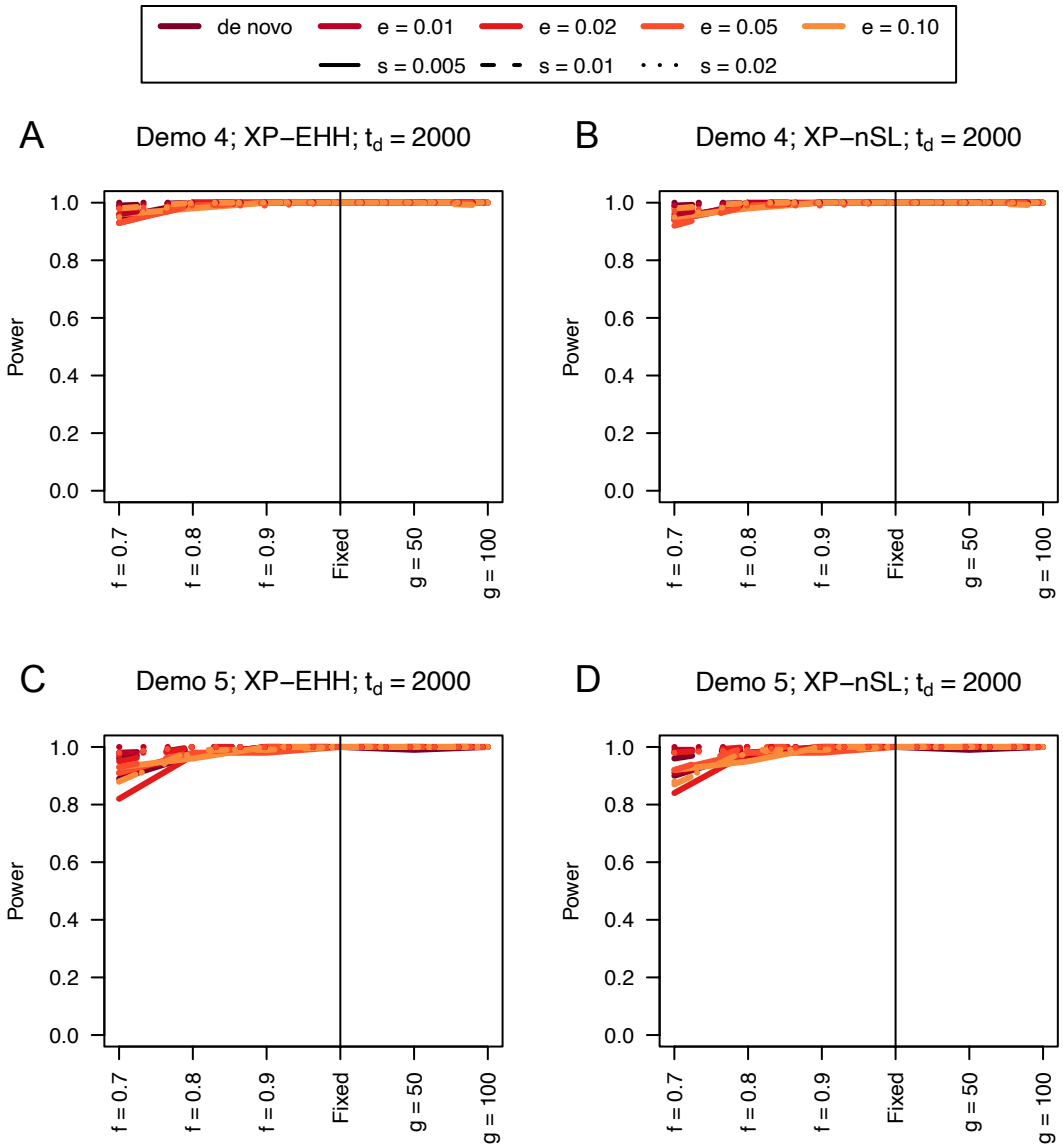


Figure S21. Power curves for unphased implementations of XP-EHH (A and C) and XP-nSL (B and D) under demographic histories Demo 4 (A and B), and Demo 5 (C and D) with n = 50 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 2000$ is the time in generations since the two populations diverged.

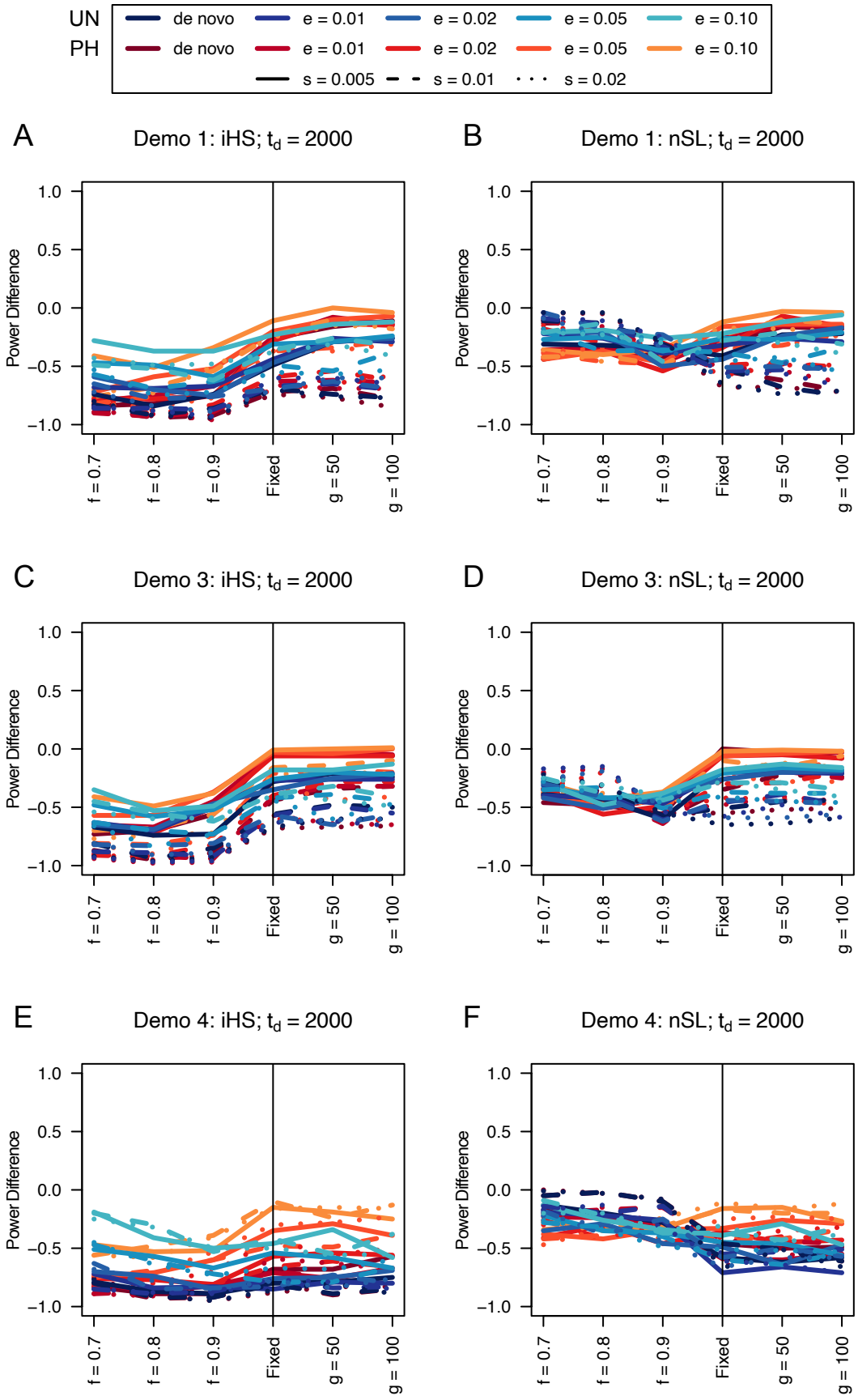

UN
PH
de novo
de novo
e = 0.01
e = 0.01
e = 0.02
e = 0.02
e = 0.05
e = 0.05
e = 0.10
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1: iHS; t_d = 2000
B
Demo 1: nSL; t_d = 2000
C
Demo 3: iHS; t_d = 2000
D
Demo 3: nSL; t_d = 2000
E
Demo 4: iHS; t_d = 2000
F
Demo 4: nSL; t_d = 2000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S22. Power difference between unphased implementations of iHS (A, C, and E) and nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 3 (C and D), and Demo 4 (E and F) with n = 50 diploid samples. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 2000$ is the time in generations since the two populations diverged.

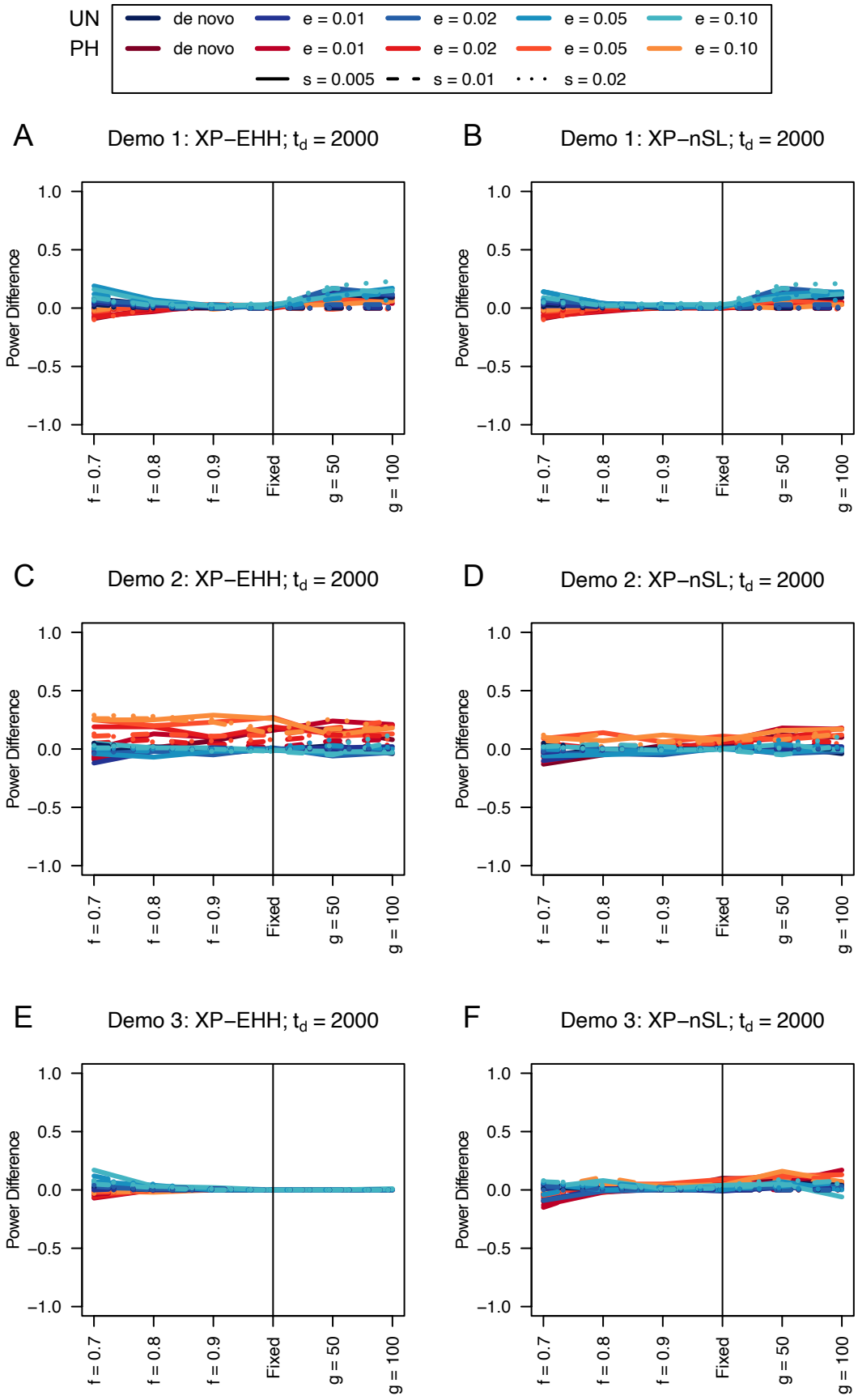

UN
PH
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1: XP−EHH; t_d = 2000
B
Demo 1: XP−nSL; t_d = 2000
C
Demo 2: XP−EHH; t_d = 2000
D
Demo 2: XP−nSL; t_d = 2000
E
Demo 3: XP−EHH; t_d = 2000
F
Demo 3: XP−nSL; t_d = 2000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S23. Power difference between unphased implementations of XP-EHH (A, C, and E) and XP-nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 2 (C and D), and Demo 3 (E and F) with n = 50 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 2000$ is the time in generations since the two populations diverged.

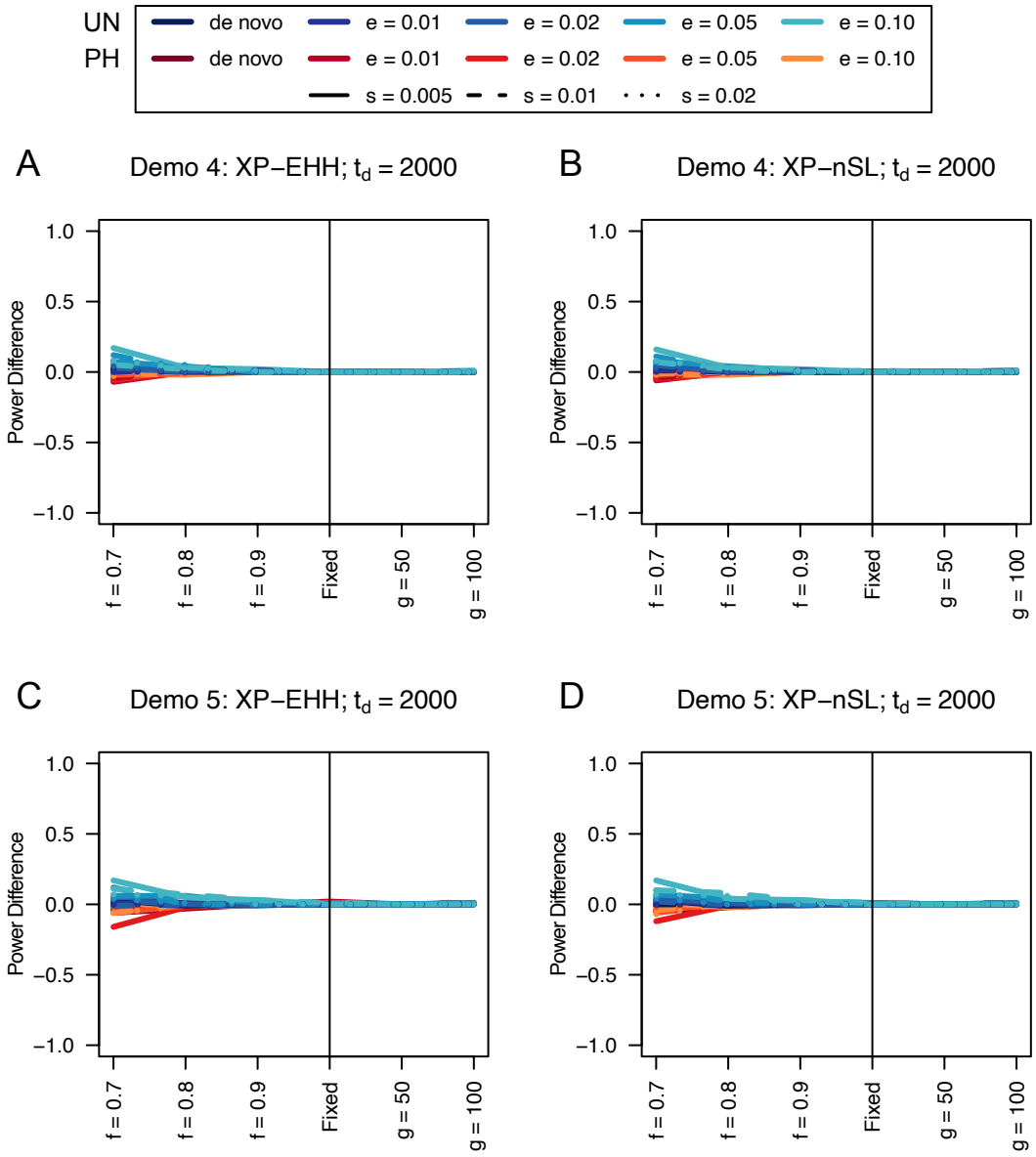


Figure S24. Power difference between unphased implementations of XP-EHH (A and C) and XP-nSL (B and D) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 4 (A and B), and Demo 5 (C and D) with n = 50 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 2000$ is the time in generations since the two populations diverged.

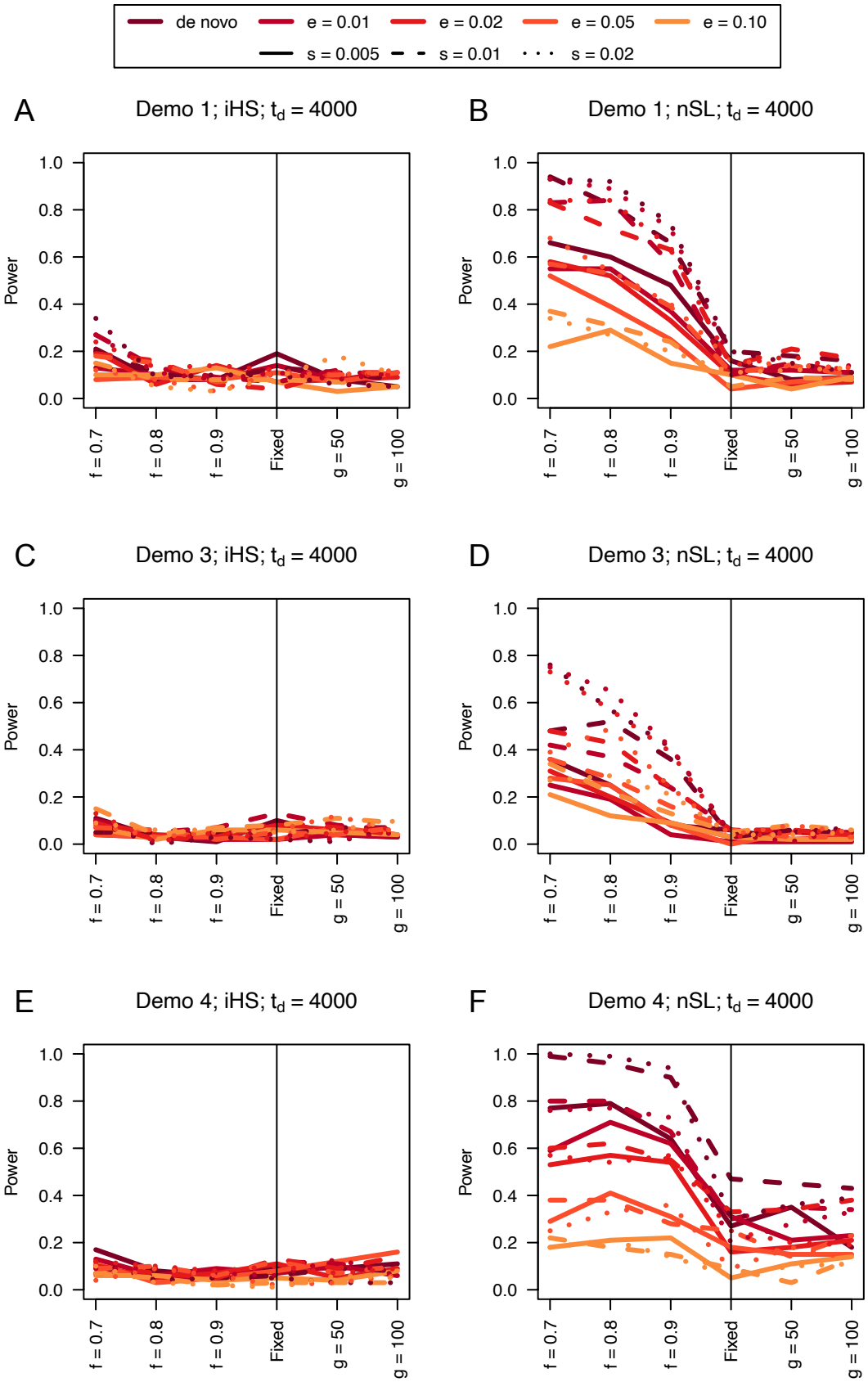

de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1; iHS; t_d = 4000
B
Demo 1; nSL; t_d = 4000
C
Demo 3; iHS; t_d = 4000
D
Demo 3; nSL; t_d = 4000
E
Demo 4; iHS; t_d = 4000
F
Demo 4; nSL; t_d = 4000
Power
0.0
0.2
0.4
0.6
0.8
1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S25. Power curves for unphased implementations of iHS (A, C, and E) and nSL (B, D, and F) under demographic histories Demo 1 (A and B), Demo 3 (C and D), and Demo 4 (E and F) with n = 50 diploid samples. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 4000$ is the time in generations since the two populations diverged.

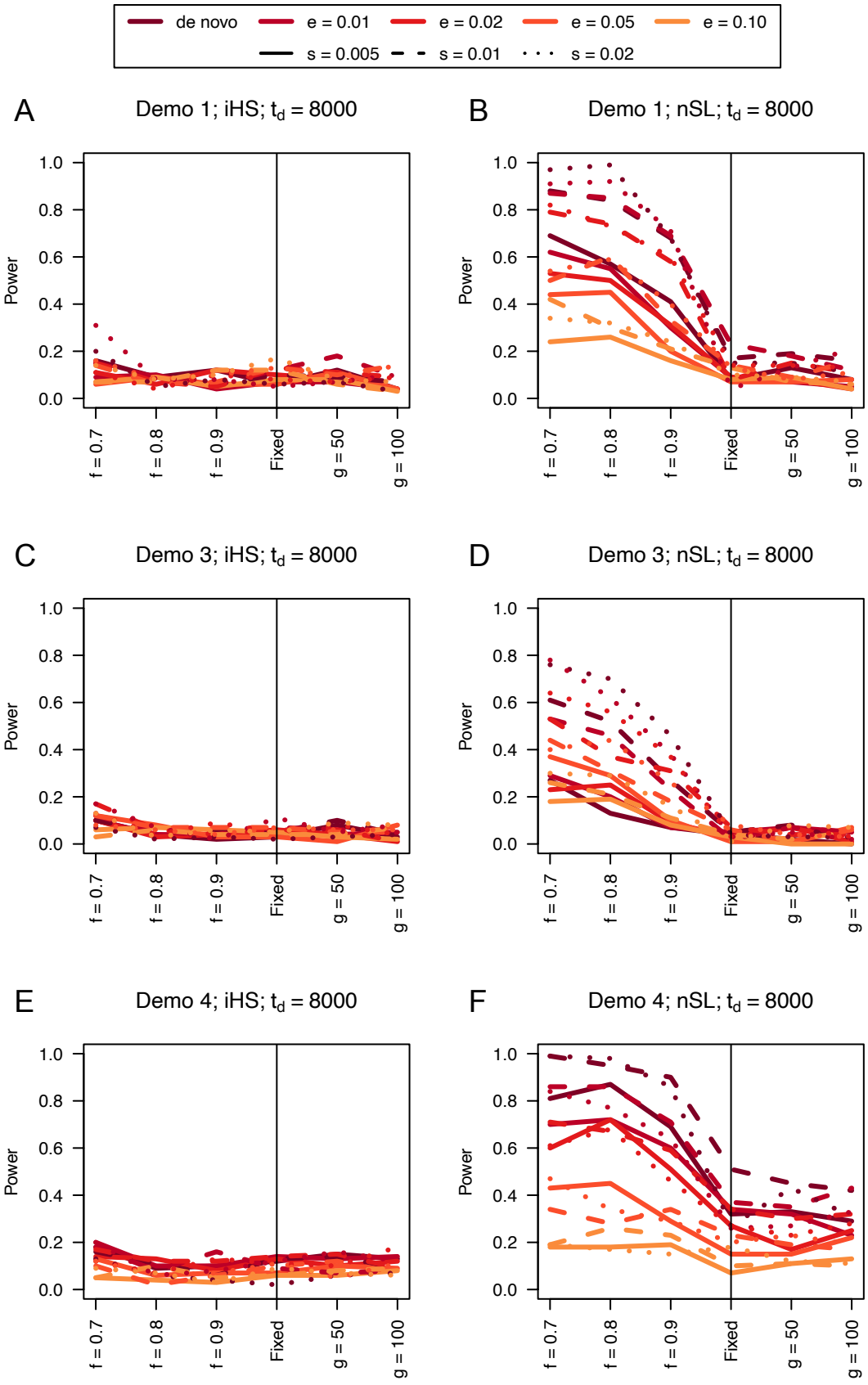

de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1; iHS; t_d = 8000
B
Demo 1; nSL; t_d = 8000
C
Demo 3; iHS; t_d = 8000
D
Demo 3; nSL; t_d = 8000
E
Demo 4; iHS; t_d = 8000
F
Demo 4; nSL; t_d = 8000
Power
0.0
0.2
0.4
0.6
0.8
1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S26. Power curves for unphased implementations of iHS (A, C, and E) and nSL (B, D, and F) under demographic histories Demo 1 (A and B), Demo 3 (C and D), and Demo 4 (E and F) with n = 50 diploid samples. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 8000$ is the time in generations since the two populations diverged.

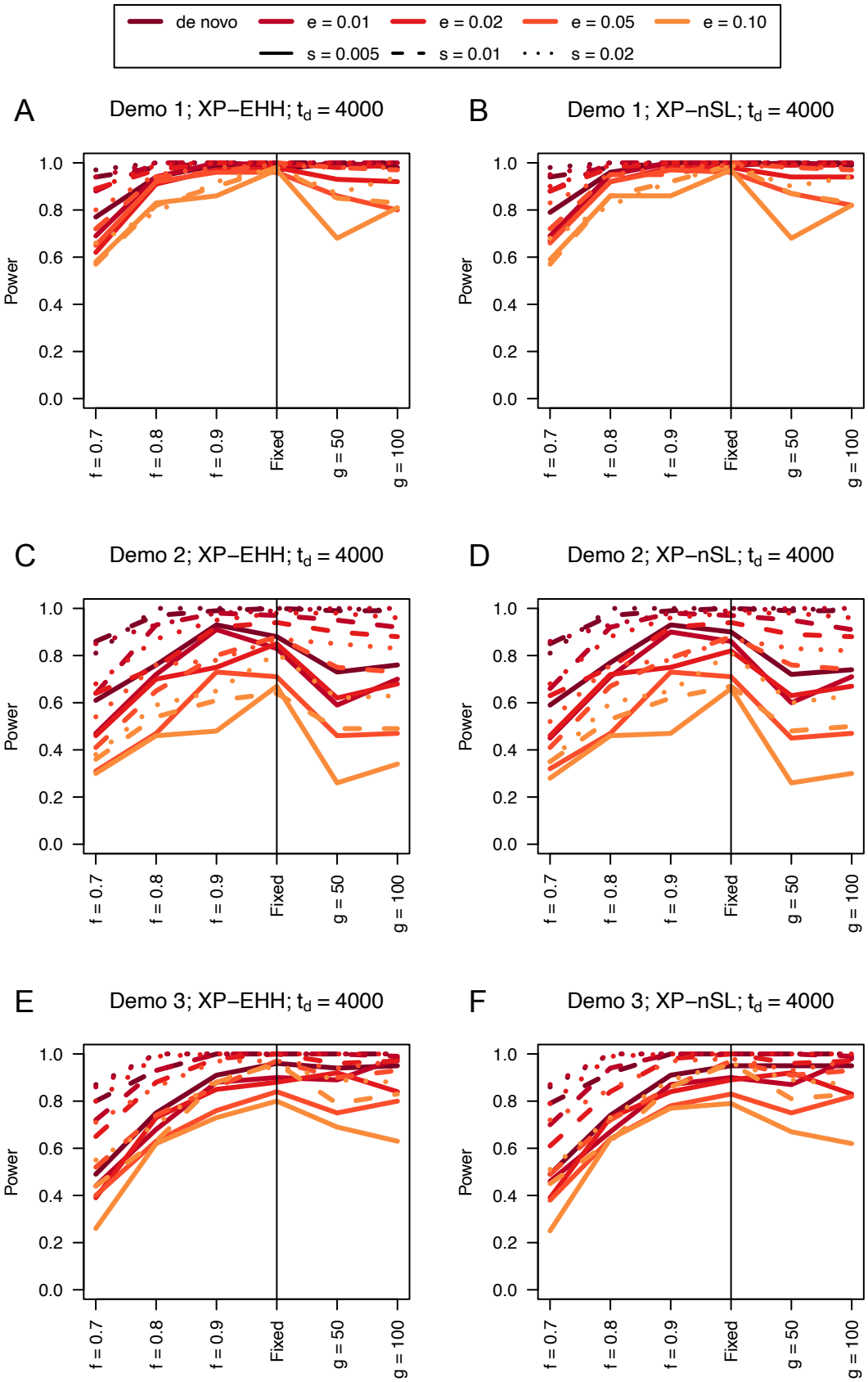

de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1; XP−EHH; t_d = 4000
B
Demo 1; XP−nSL; t_d = 4000
C
Demo 2; XP−EHH; t_d = 4000
D
Demo 2; XP−nSL; t_d = 4000
E
Demo 3; XP−EHH; t_d = 4000
F
Demo 3; XP−nSL; t_d = 4000
Power
0.0
0.2
0.4
0.6
0.8
1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S27. Power difference between unphased implementations of XP-EHH (A, C, and E) and XP-nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 2 (C and D), and Demo 3 (E and F) with n = 50 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 4000$ is the time in generations since the two populations diverged.

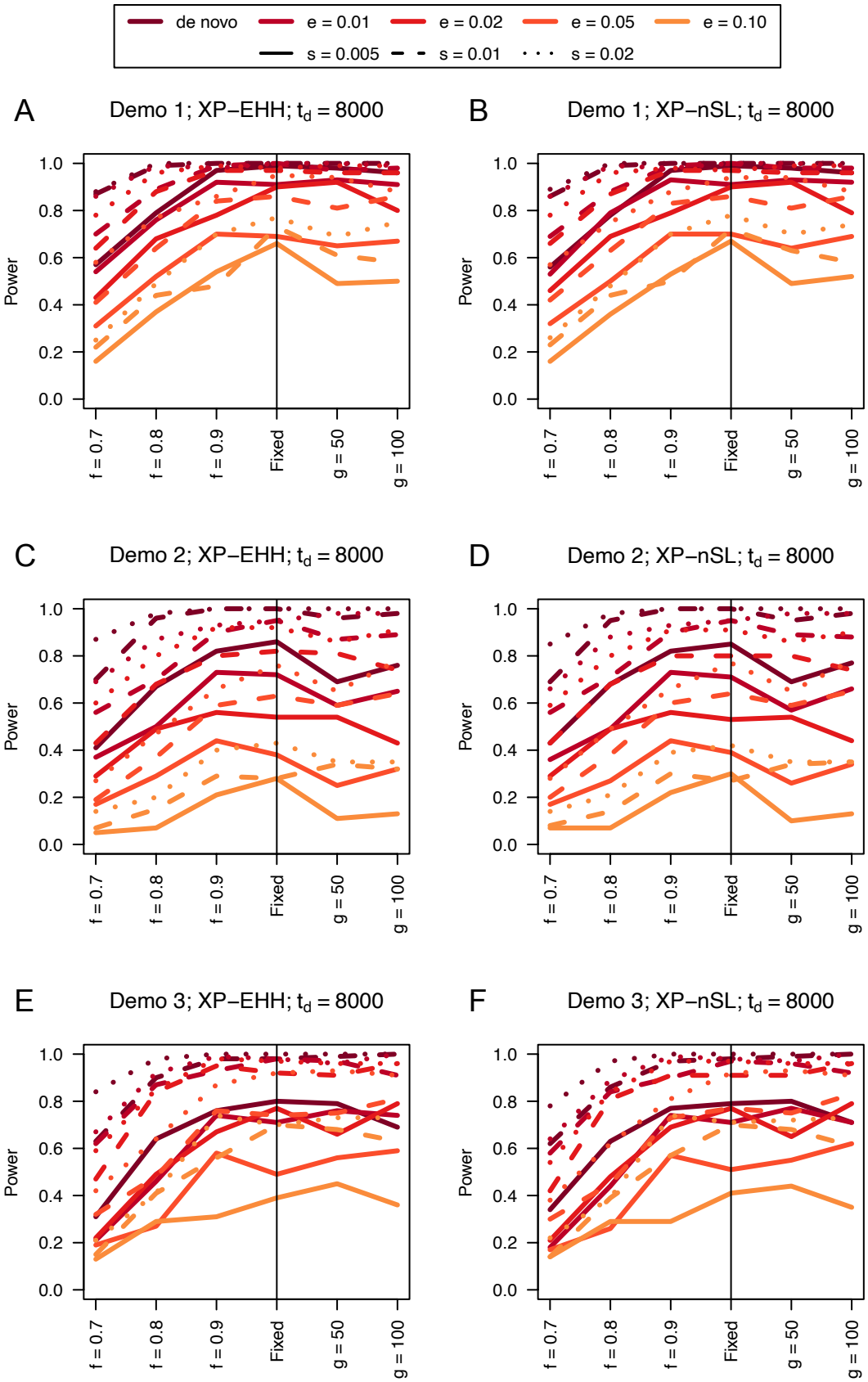

de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1; XP−EHH; t_d = 8000
B
Demo 1; XP−nSL; t_d = 8000
C
Demo 2; XP−EHH; t_d = 8000
D
Demo 2; XP−nSL; t_d = 8000
E
Demo 3; XP−EHH; t_d = 8000
F
Demo 3; XP−nSL; t_d = 8000
Power
0.0
0.2
0.4
0.6
0.8
1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S28. Power difference between unphased implementations of XP-EHH (A, C, and E) and XP-nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 2 (C and D), and Demo 3 (E and F) with n = 50 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 8000$ is the time in generations since the two populations diverged.

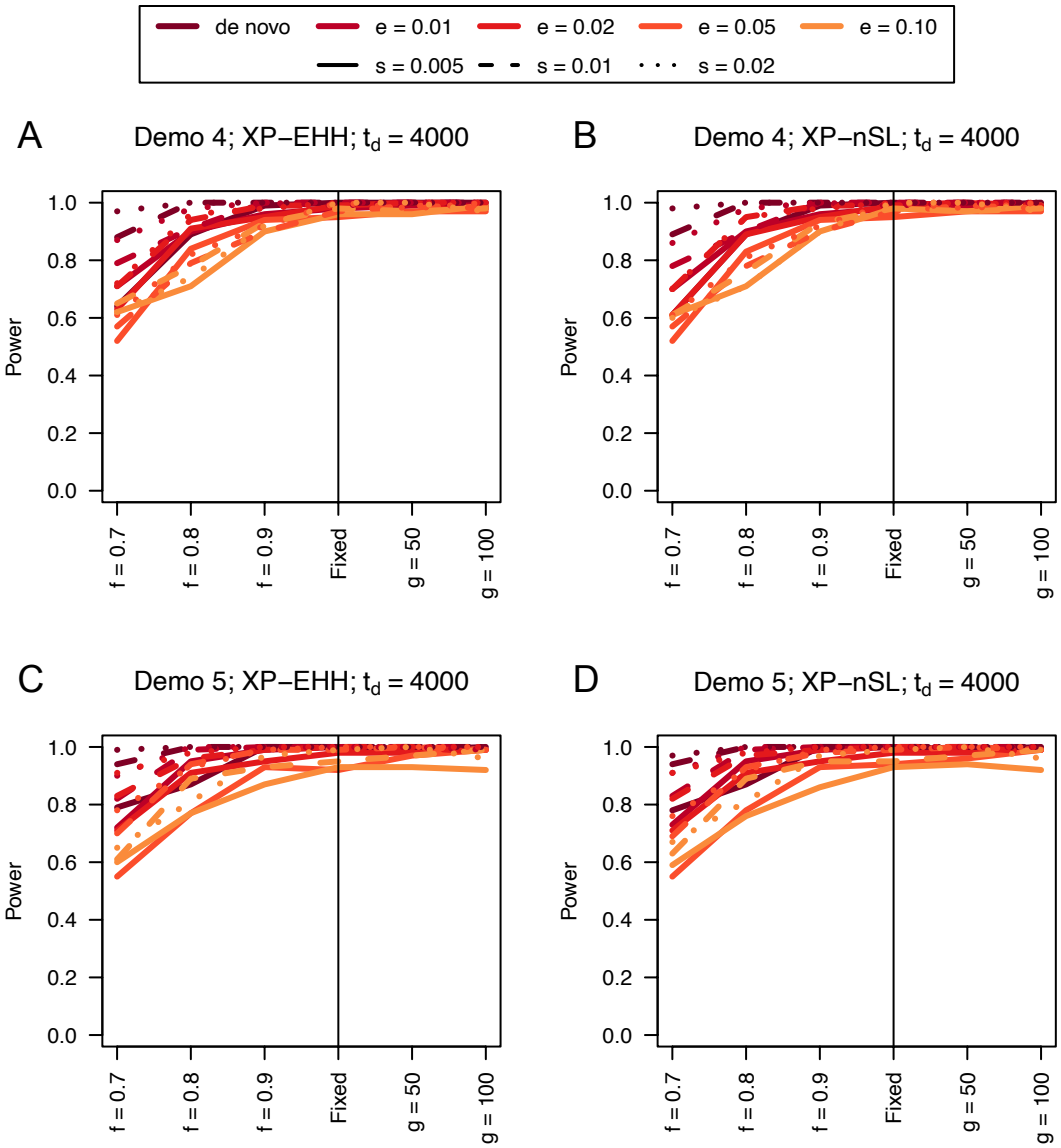


Figure S29. Power curves for unphased implementations of XP-EHH (A and C) and XP-nSL (B and D) under demographic histories Demo 4 (A and B), and Demo 5 (C and D) with n = 50 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 4000$ is the time in generations since the two populations diverged.

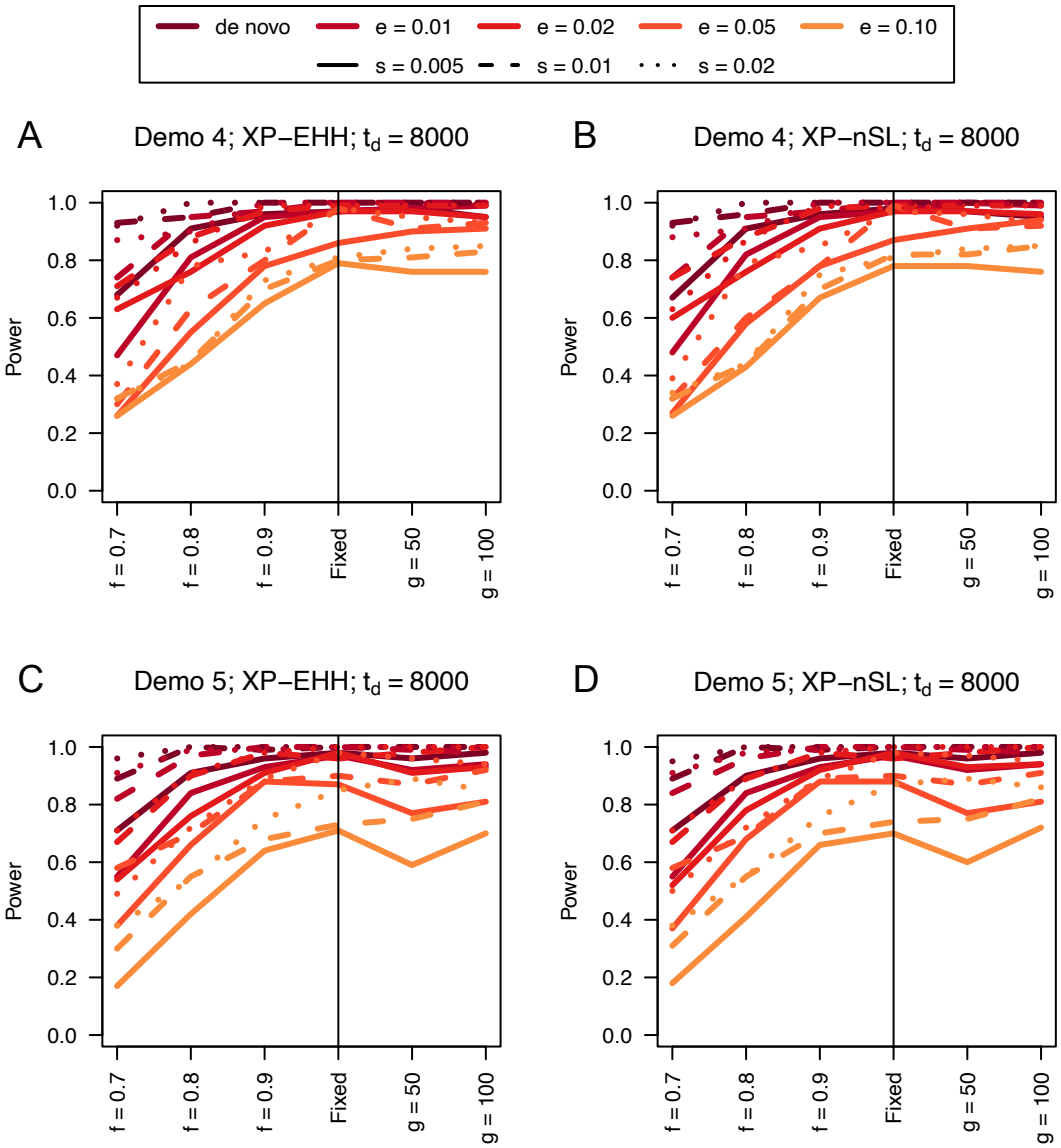


Figure S30. Power curves for unphased implementations of XP-EHH (A and C) and XP-nSL (B and D) under demographic histories Demo 4 (A and B), and Demo 5 (C and D) with n = 50 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 8000$ is the time in generations since the two populations diverged.

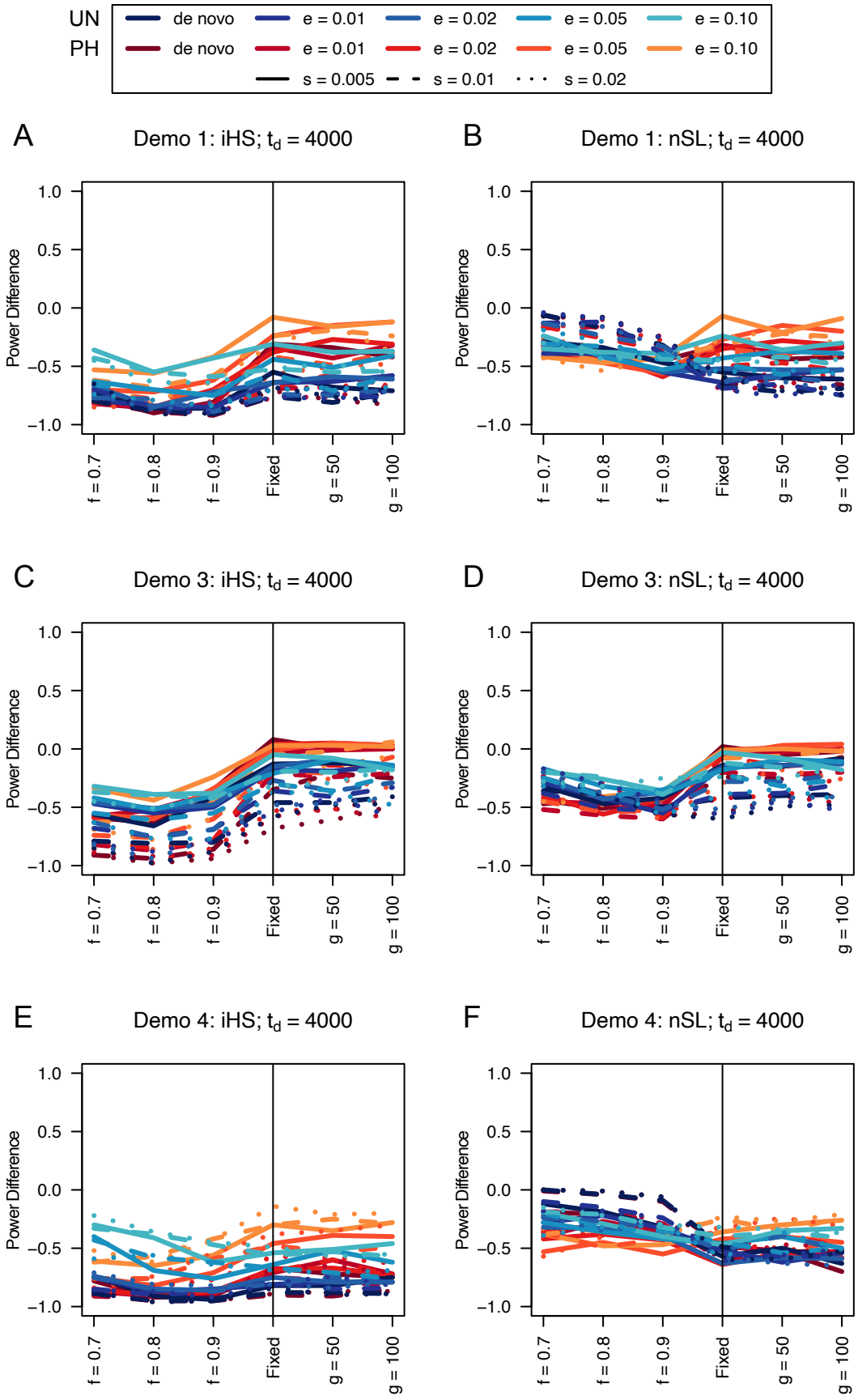

UN
PH
de novo
de novo
e = 0.01
e = 0.01
e = 0.02
e = 0.02
e = 0.05
e = 0.05
e = 0.10
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1: iHS; t_d = 4000
B
Demo 1: nSL; t_d = 4000
C
Demo 3: iHS; t_d = 4000
D
Demo 3: nSL; t_d = 4000
E
Demo 4: iHS; t_d = 4000
F
Demo 4: nSL; t_d = 4000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S31. Power difference between unphased implementations of iHS (A, C, and E) and nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 3 (C and D), and Demo 4 (E and F) with n = 50 diploid samples. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 4000$ is the time in generations since the two populations diverged.

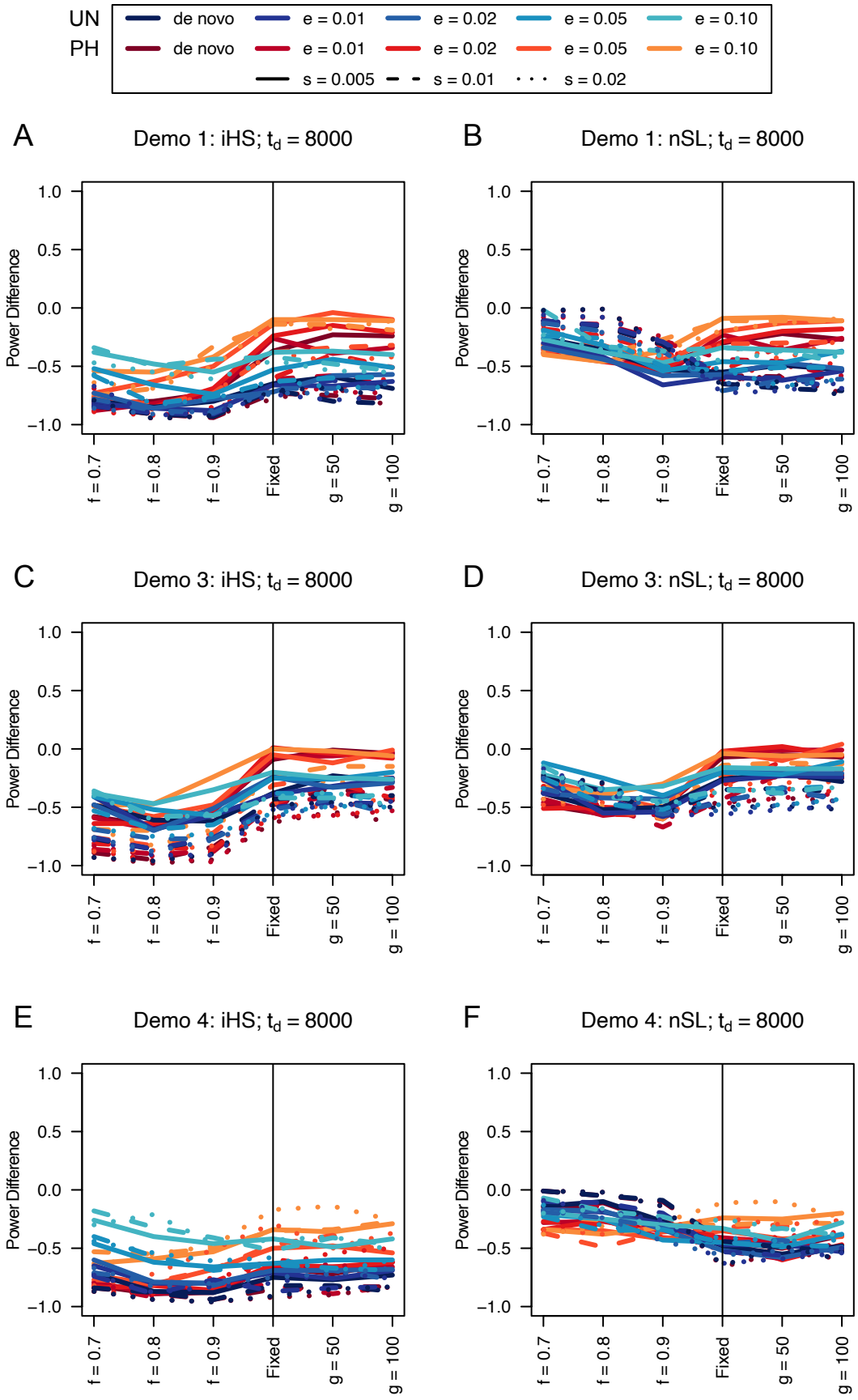

UN
PH
de novo
de novo
e = 0.01
e = 0.01
e = 0.02
e = 0.02
e = 0.05
e = 0.05
e = 0.10
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1: iHS; t_d = 8000
B
Demo 1: nSL; t_d = 8000
C
Demo 3: iHS; t_d = 8000
D
Demo 3: nSL; t_d = 8000
E
Demo 4: iHS; t_d = 8000
F
Demo 4: nSL; t_d = 8000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S32. Power difference between unphased implementations of iHS (A, C, and E) and nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 3 (C and D), and Demo 4 (E and F) with n = 50 diploid samples. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 8000$ is the time in generations since the two populations diverged.

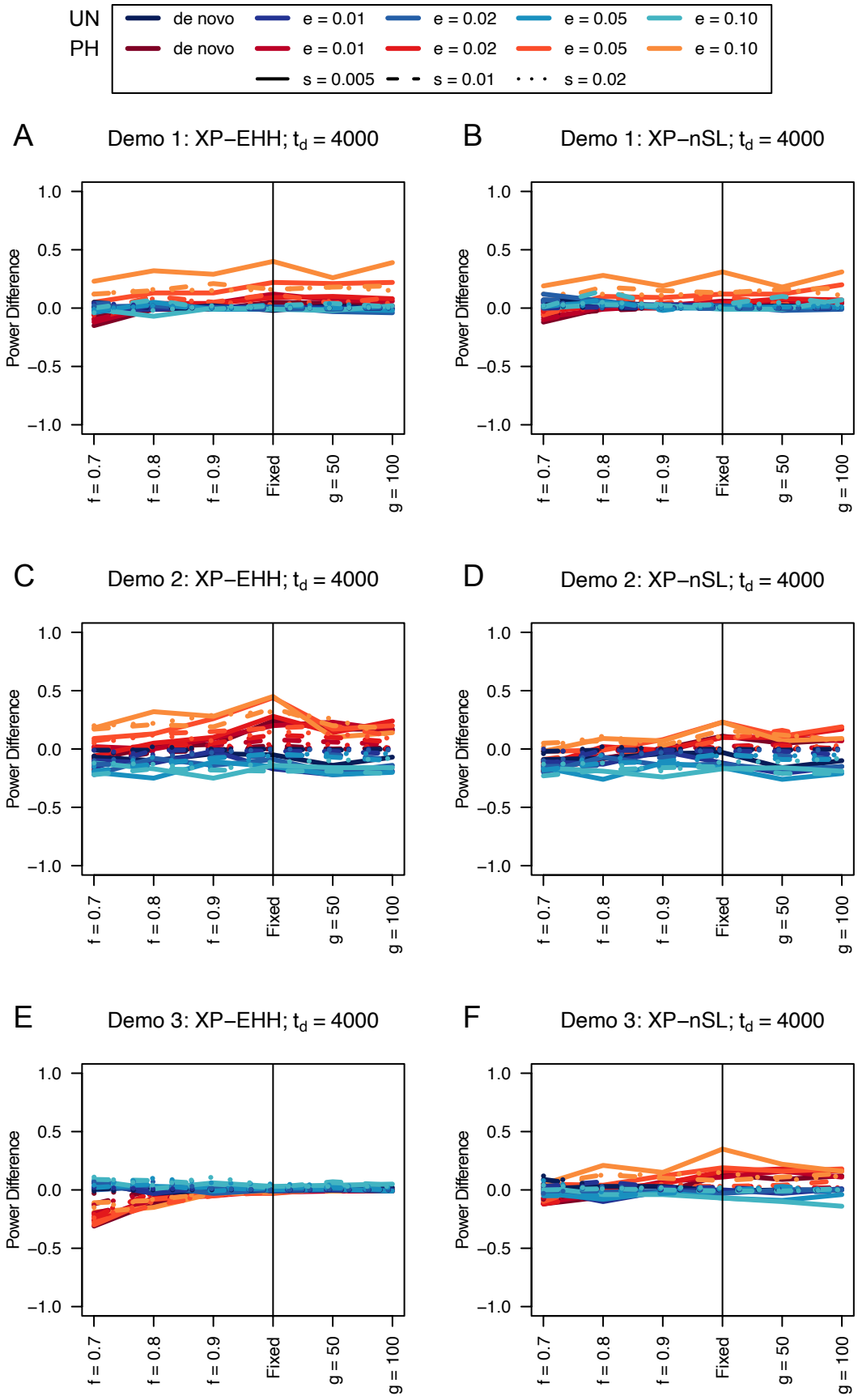

UN
PH
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1: XP−EHH; t_d = 4000
B
Demo 1: XP−nSL; t_d = 4000
C
Demo 2: XP−EHH; t_d = 4000
D
Demo 2: XP−nSL; t_d = 4000
E
Demo 3: XP−EHH; t_d = 4000
F
Demo 3: XP−nSL; t_d = 4000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S33. Power difference between unphased implementations of XP-EHH (A, C, and E) and XP-nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 2 (C and D), and Demo 3 (E and F) with n = 50 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 4000$ is the time in generations since the two populations diverged.

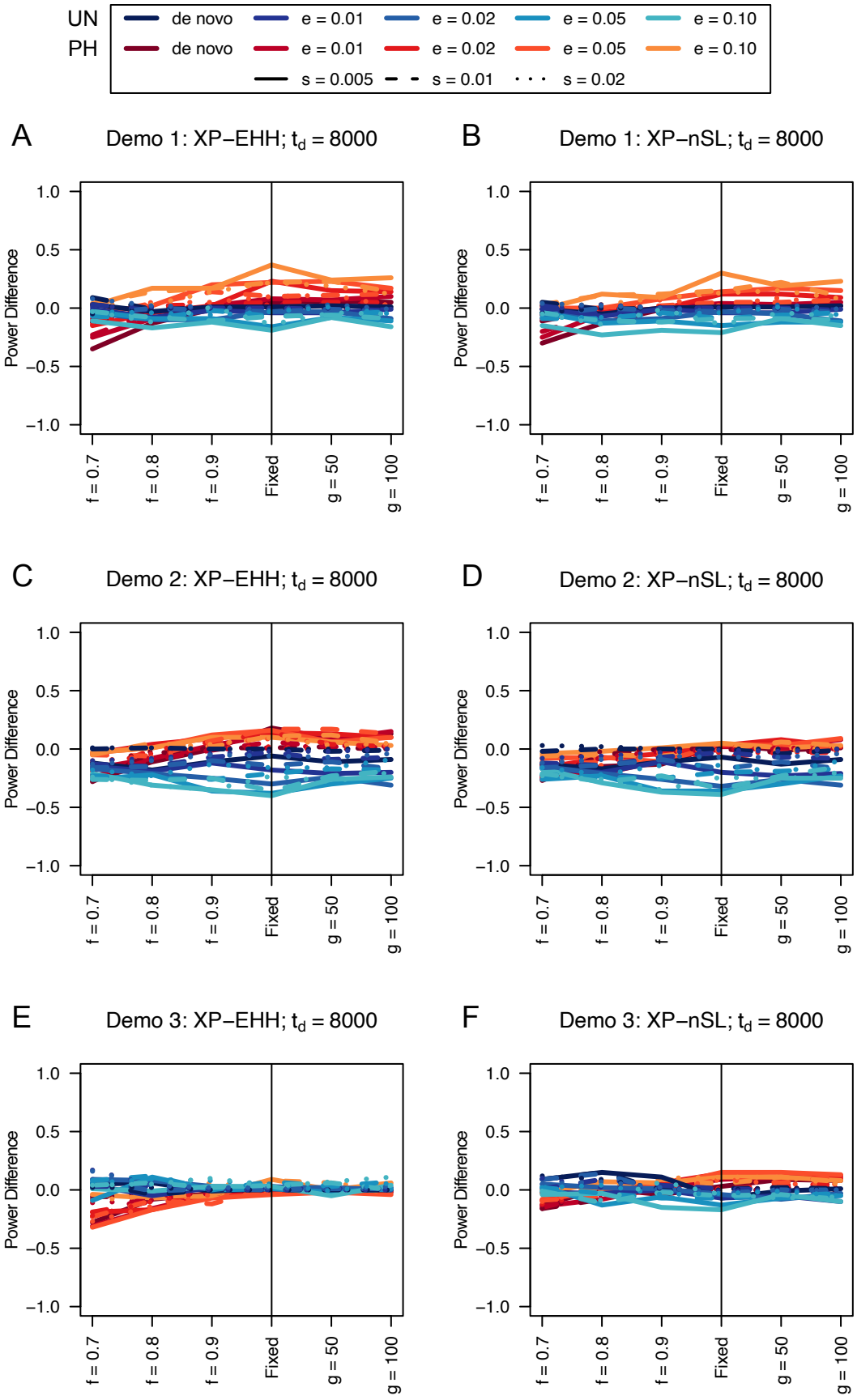

UN
PH
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1: XP−EHH; t_d = 8000
B
Demo 1: XP−nSL; t_d = 8000
C
Demo 2: XP−EHH; t_d = 8000
D
Demo 2: XP−nSL; t_d = 8000
E
Demo 3: XP−EHH; t_d = 8000
F
Demo 3: XP−nSL; t_d = 8000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S34. Power difference between unphased implementations of XP-EHH (A, C, and E) and XP-nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 2 (C and D), and Demo 3 (E and F) with n = 50 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 8000$ is the time in generations since the two populations diverged.

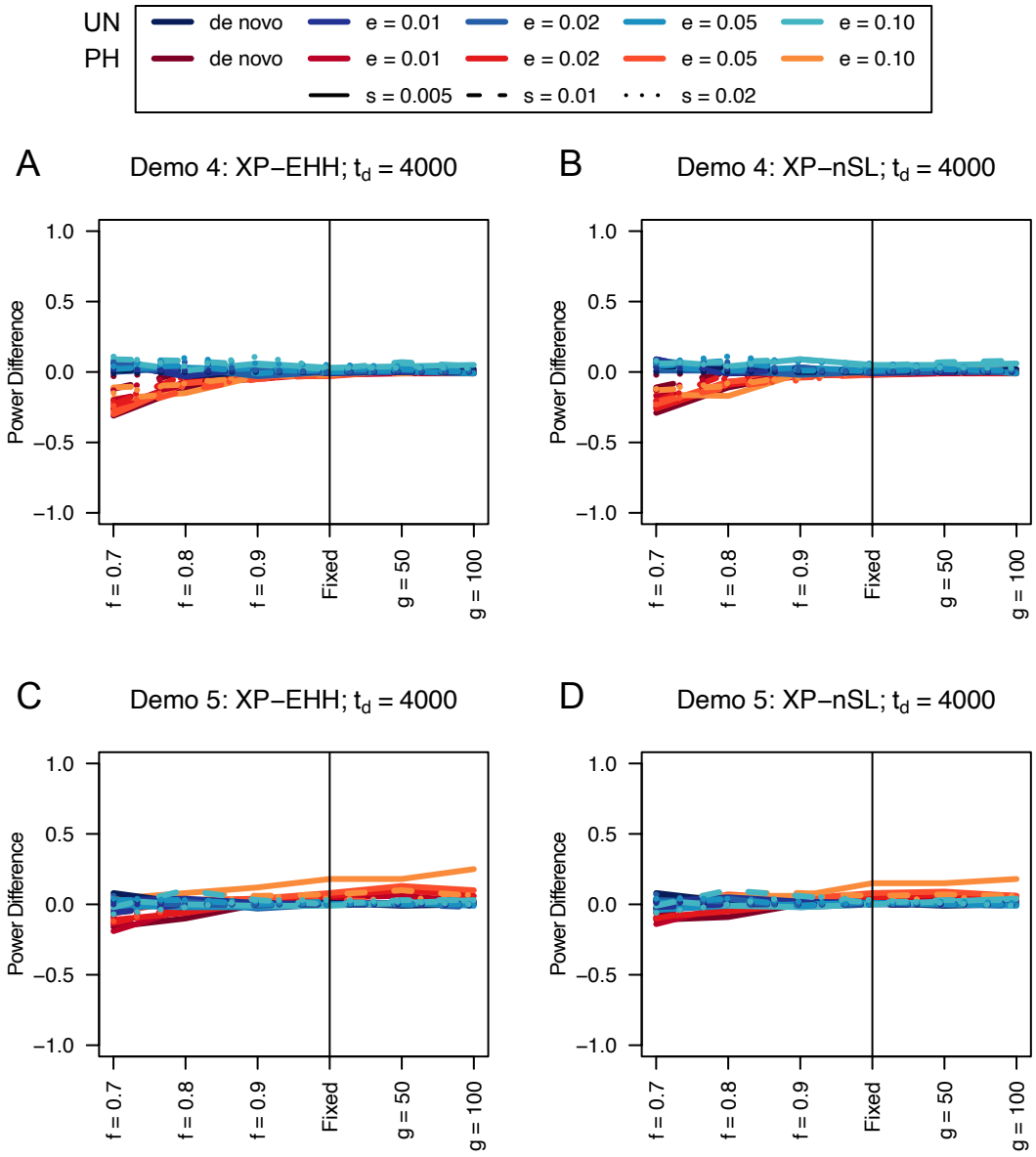


Figure S35. Power difference between unphased implementations of XP-EHH (A and C) and XP-nSL (B and D) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 4 (A and B), and Demo 5 (C and D) with n = 50 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 4000$ is the time in generations since the two populations diverged.

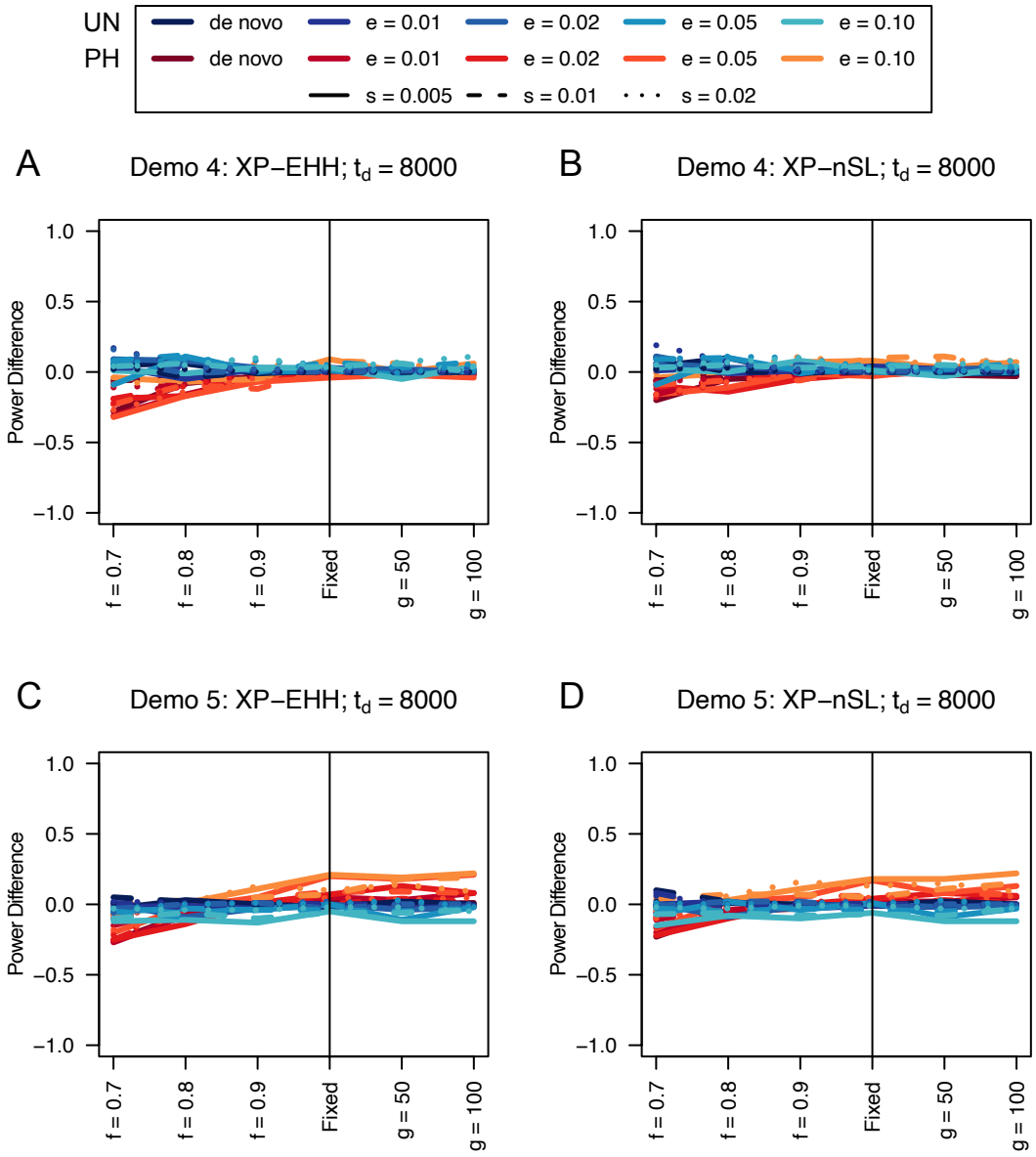
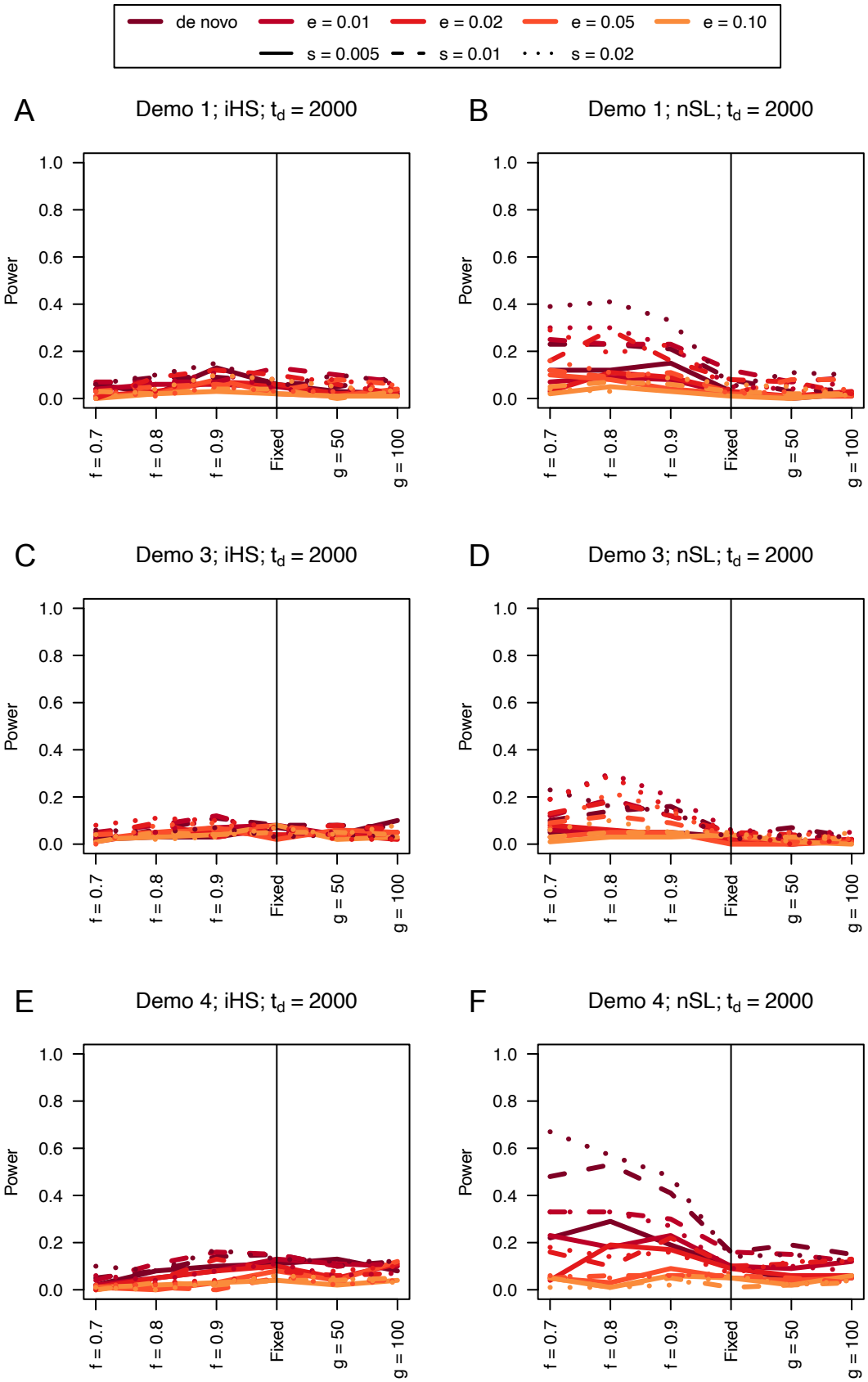
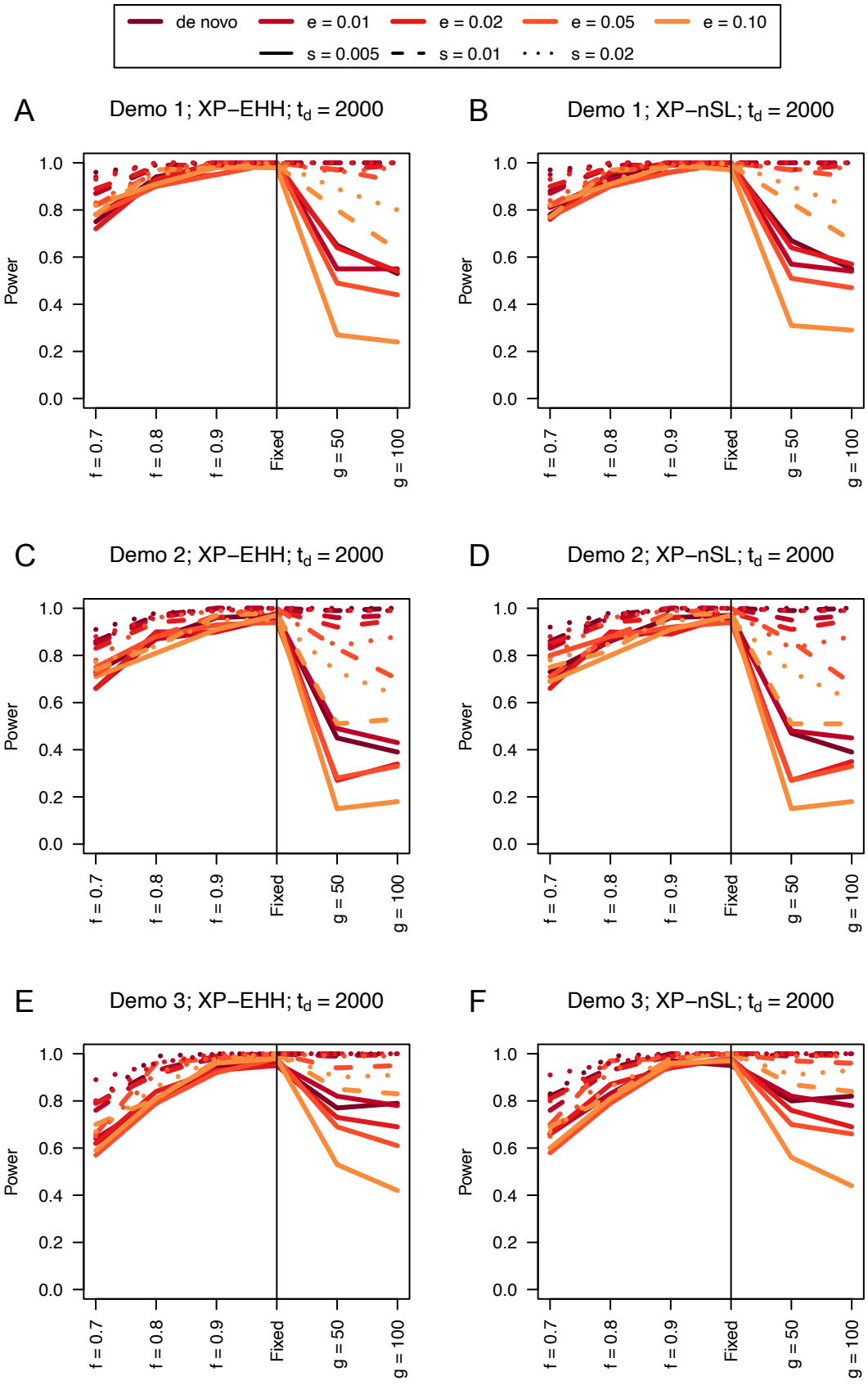


Table S36. Power difference between unphased implementations of XP-EHH (A and C) and XP-nSL (B and D) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 4 (A and B), and Demo 5 (C and D) with n = 50 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 8000$ is the time in generations since the two populations diverged.


de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1; iHS; t_d = 2000
B
Demo 1; nSL; t_d = 2000
C
Demo 3; iHS; t_d = 2000
D
Demo 3; nSL; t_d = 2000
E
Demo 4; iHS; t_d = 2000
F
Demo 4; nSL; t_d = 2000
Power
0.0
0.2
0.4
0.6
0.8
1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

415

Figure S37. Power curves for unphased implementations of iHS (A, C, and E) and nSL (B, D, and F) under demographic histories Demo 1 (A and B), Demo 3 (C and D), and Demo 4 (E and F) with n = 20 diploid samples. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 2000$ is the time in generations since the two populations diverged.


de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1; XP−EHH; t_d = 2000
B
Demo 1; XP−nSL; t_d = 2000
C
Demo 2; XP−EHH; t_d = 2000
D
Demo 2; XP−nSL; t_d = 2000
E
Demo 3; XP−EHH; t_d = 2000
F
Demo 3; XP−nSL; t_d = 2000
Power
0.0
0.2
0.4
0.6
0.8
1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

421

Figure S38. Power curves for unphased implementations of XP-EHH (A, C, and E) and XP-nSL (B, D, and F) under demographic histories Demo 1 (A and B), Demo 2 (C and D), and Demo 3 (E and F) with n = 20 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 2000$ is the time in generations since the two populations diverged.

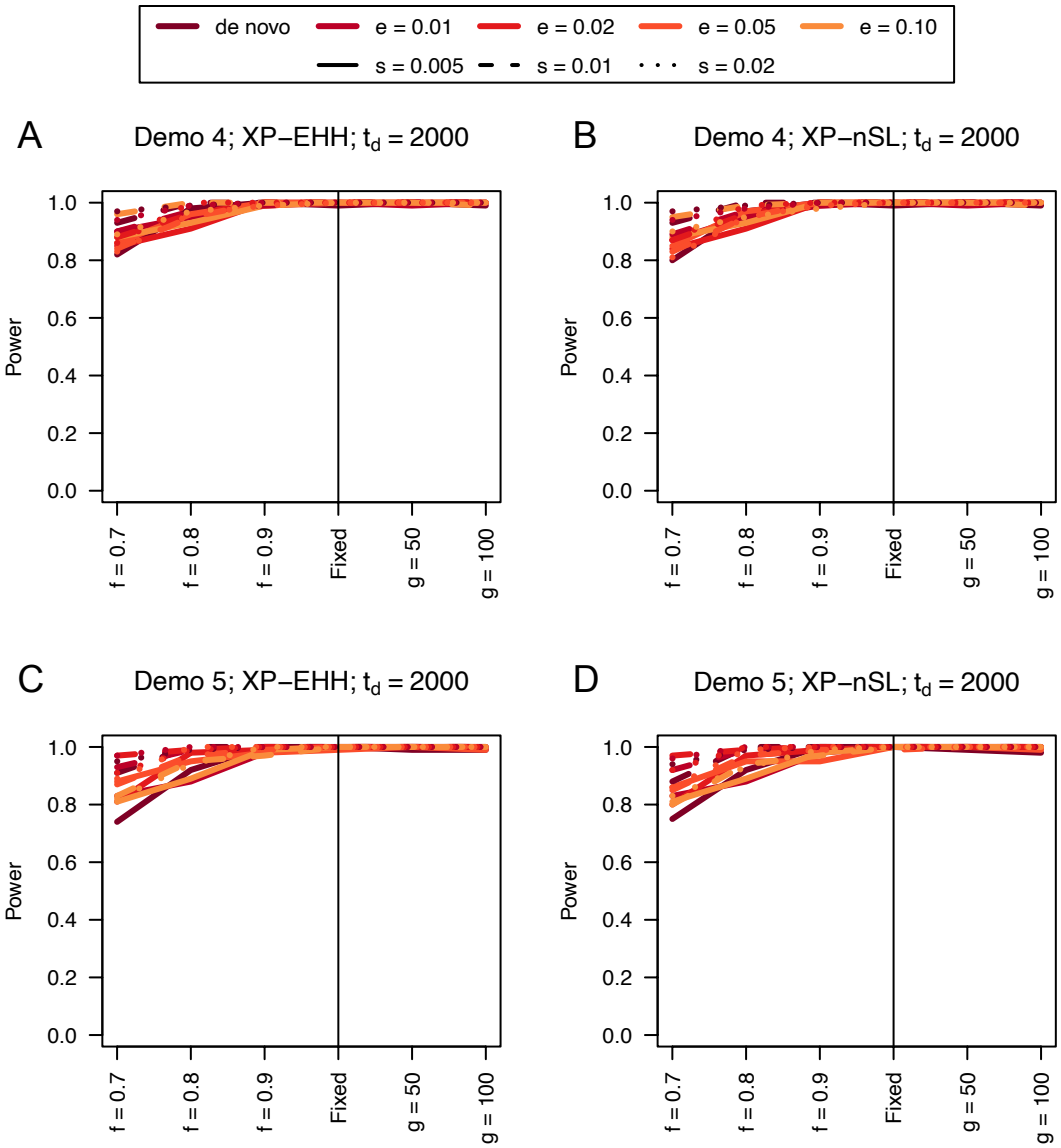


Figure S39. Power curves for unphased implementations of XP-EHH (A and C) and XP-nSL (B and D) under demographic histories Demo 4 (A and B), and Demo 5 (C and D) with n = 20 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 2000$ is the time in generations since the two populations diverged.

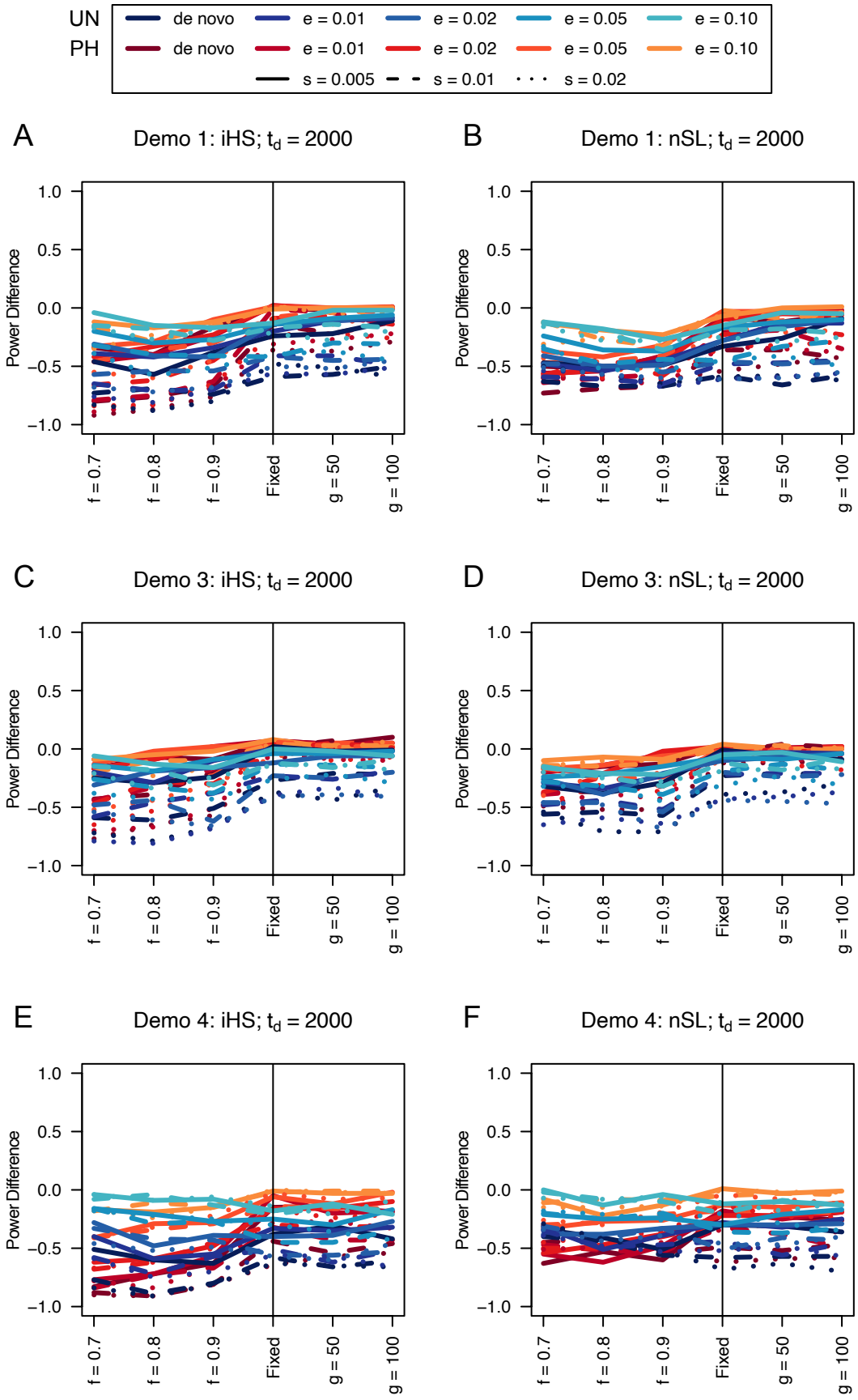

UN
PH
de novo
de novo
e = 0.01
e = 0.01
e = 0.02
e = 0.02
e = 0.05
e = 0.05
e = 0.10
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1: iHS; t_d = 2000
B
Demo 1: nSL; t_d = 2000
C
Demo 3: iHS; t_d = 2000
D
Demo 3: nSL; t_d = 2000
E
Demo 4: iHS; t_d = 2000
F
Demo 4: nSL; t_d = 2000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S40. Power difference between unphased implementations of iHS (A, C, and E) and nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 3 (C and D), and Demo 4 (E and F) with n = 20 diploid samples. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 2000$ is the time in generations since the two populations diverged.

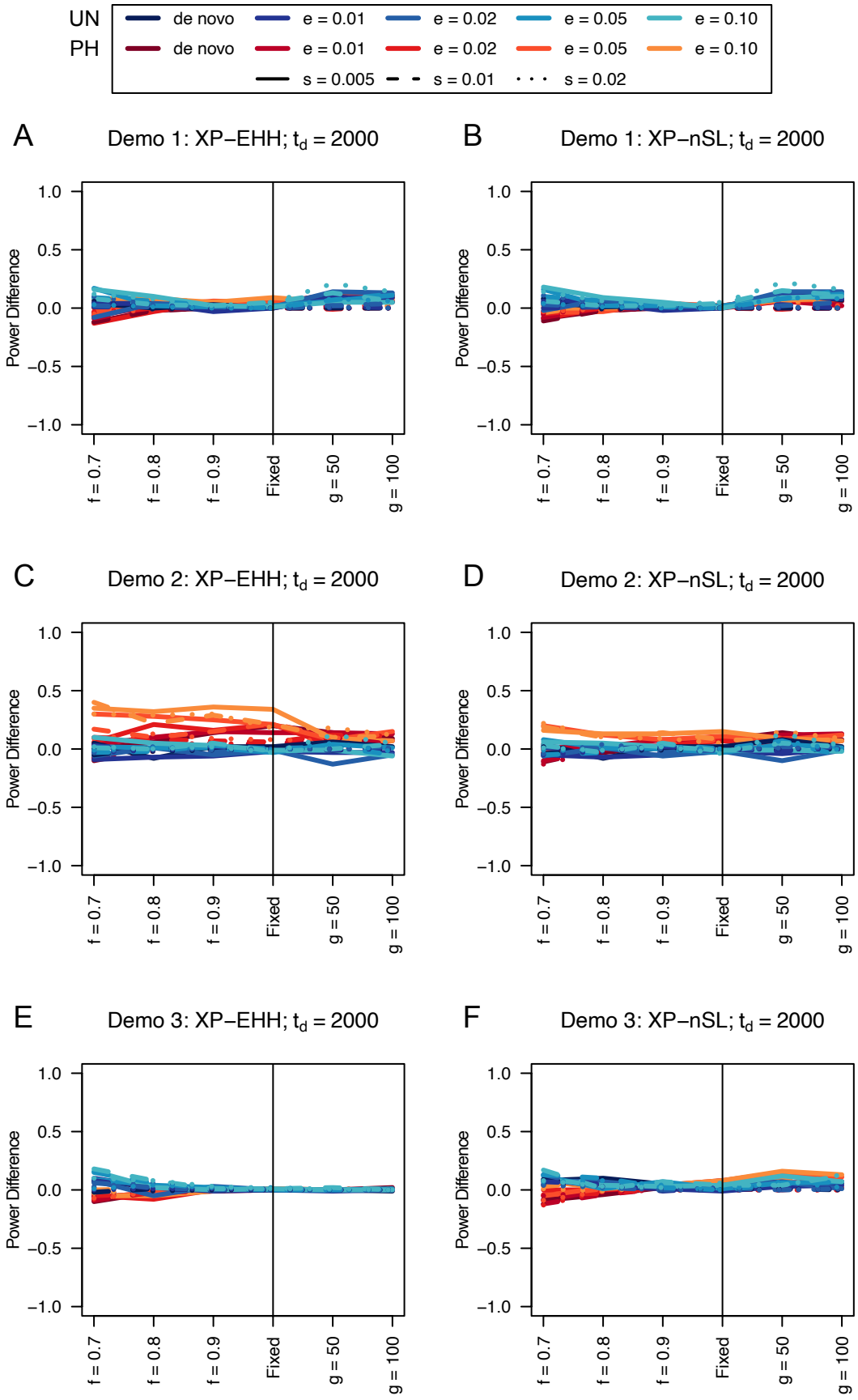

UN
PH
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1: XP−EHH; t_d = 2000
B
Demo 1: XP−nSL; t_d = 2000
C
Demo 2: XP−EHH; t_d = 2000
D
Demo 2: XP−nSL; t_d = 2000
E
Demo 3: XP−EHH; t_d = 2000
F
Demo 3: XP−nSL; t_d = 2000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S41. Power difference between unphased implementations of XP-EHH (A, C, and E) and XP-nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 2 (C and D), and Demo 3 (E and F) with n = 20 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 2000$ is the time in generations since the two populations diverged.

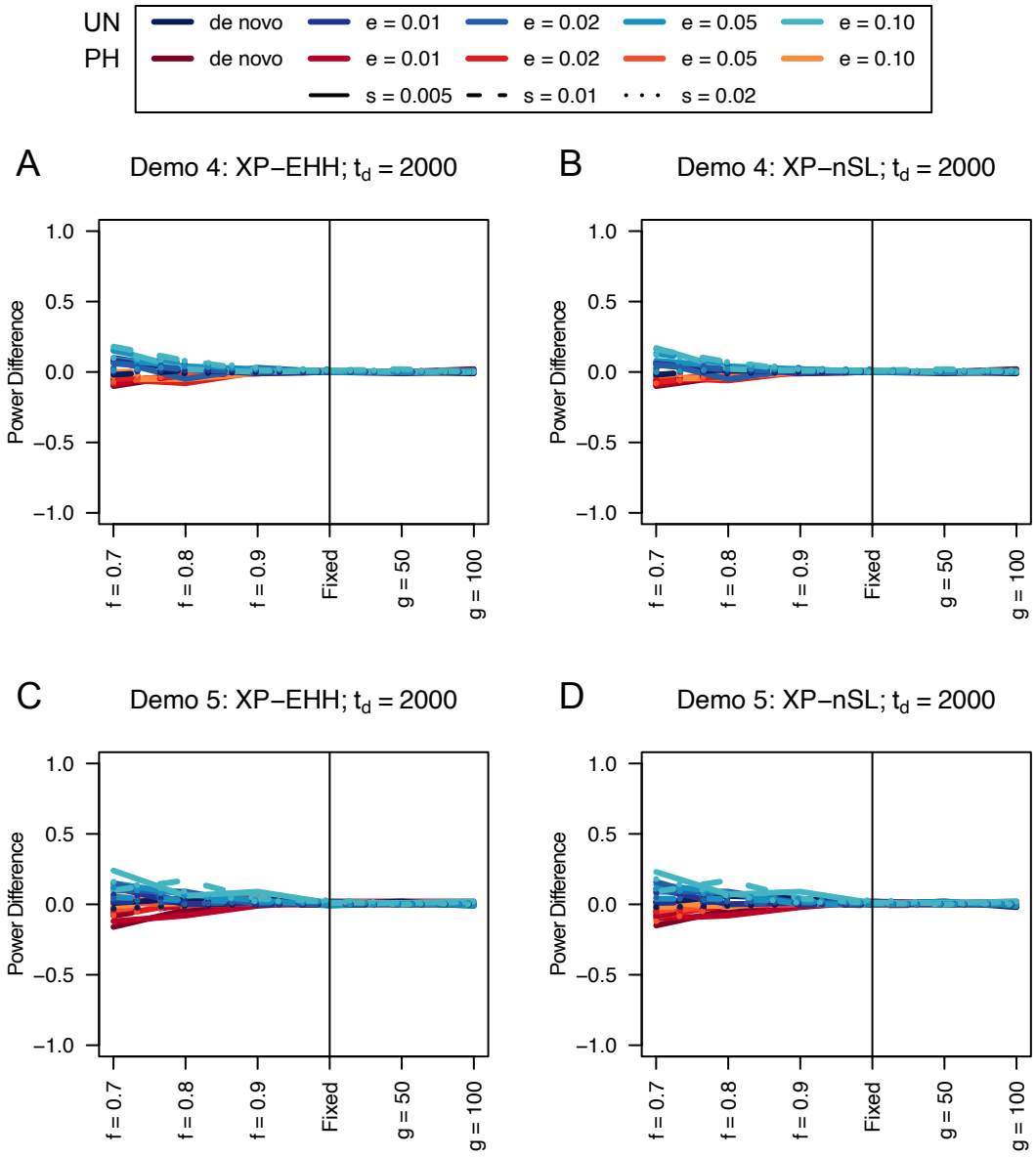


Figure S42. Power difference between unphased implementations of XP-EHH (A and C) and XP-nSL (B and D) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 4 (A and B), and Demo 5 (C and D) with n = 20 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 2000$ is the time in generations since the two populations diverged.

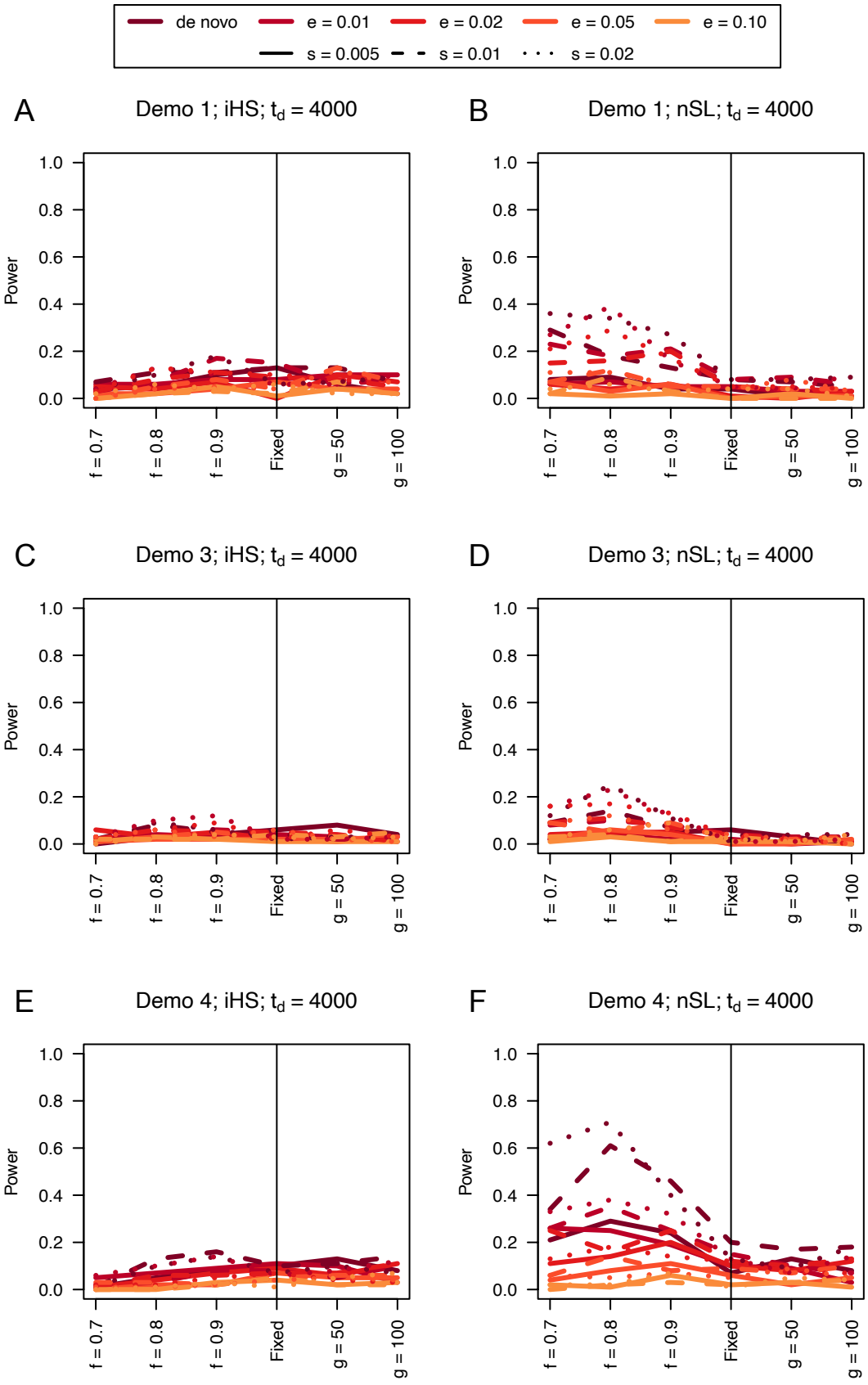

de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1; iHS; t_d = 4000
B
Demo 1; nSL; t_d = 4000
C
Demo 3; iHS; t_d = 4000
D
Demo 3; nSL; t_d = 4000
E
Demo 4; iHS; t_d = 4000
F
Demo 4; nSL; t_d = 4000
Power
0.0
0.2
0.4
0.6
0.8
1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S43. Power curves for unphased implementations of iHS (A, C, and E) and nSL (B, D, and F) under demographic histories Demo 1 (A and B), Demo 3 (C and D), and Demo 4 (E and F) with n = 20 diploid samples. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 4000$ is the time in generations since the two populations diverged.

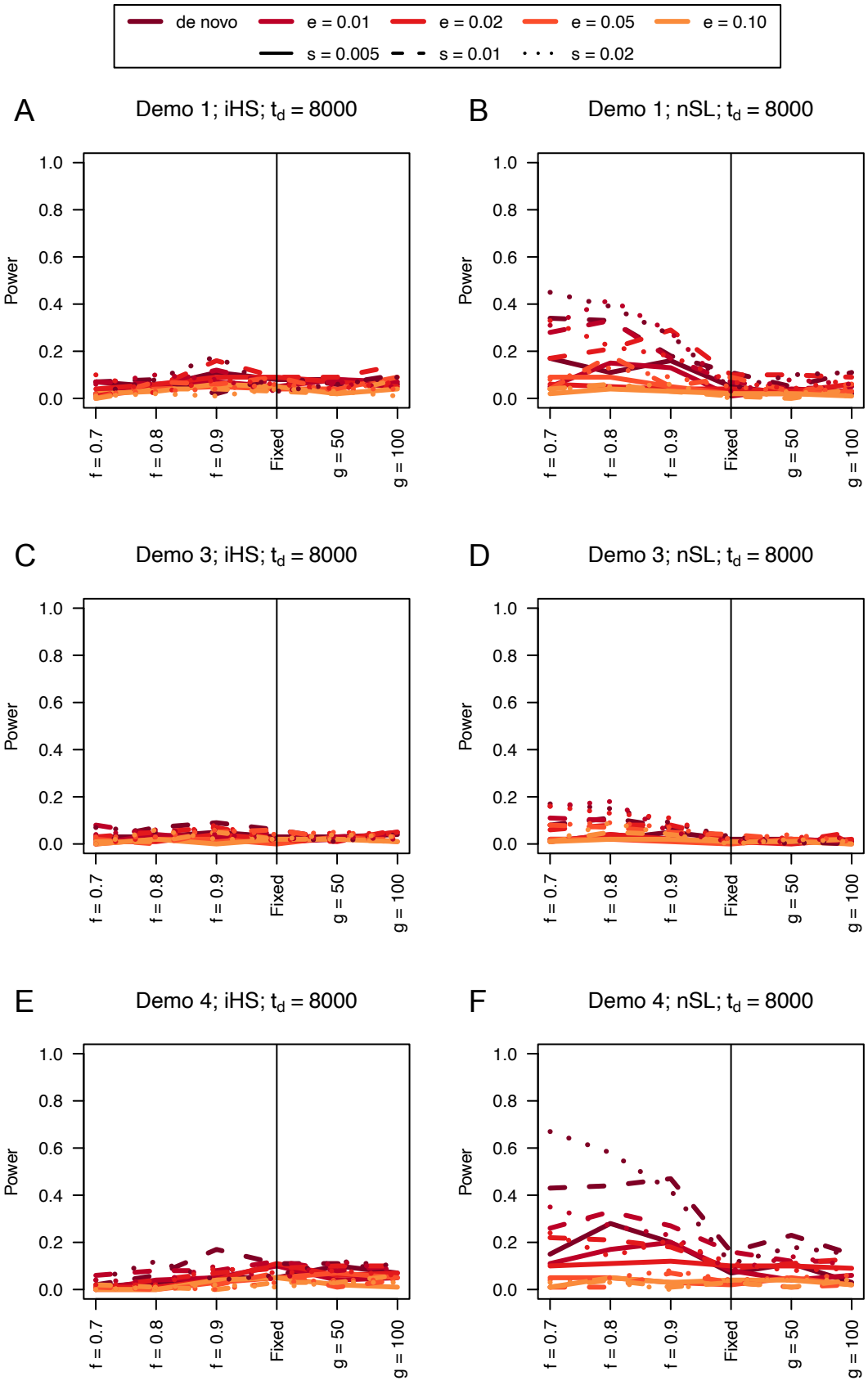

de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1; iHS; t_d = 8000
B
Demo 1; nSL; t_d = 8000
C
Demo 3; iHS; t_d = 8000
D
Demo 3; nSL; t_d = 8000
E
Demo 4; iHS; t_d = 8000
F
Demo 4; nSL; t_d = 8000
Power
1.0
0.8
0.6
0.4
0.2
0.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S44. Power curves for unphased implementations of iHS (A, C, and E) and nSL (B, D, and F) under demographic histories Demo 1 (A and B), Demo 3 (C and D), and Demo 4 (E and F) with n = 20 diploid samples. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 8000$ is the time in generations since the two populations diverged.

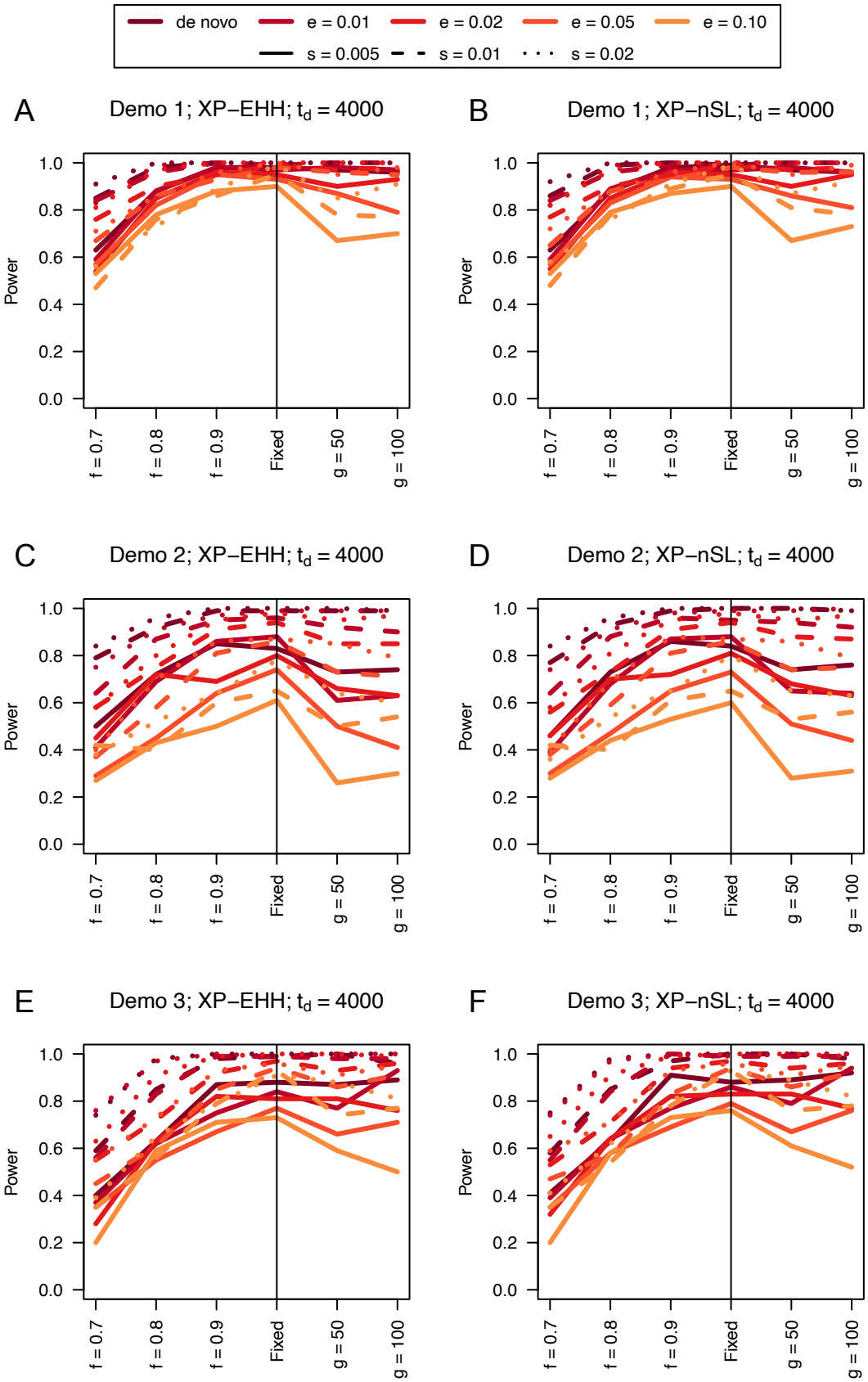

de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1; XP−EHH; t_d = 4000
B
Demo 1; XP−nSL; t_d = 4000
C
Demo 2; XP−EHH; t_d = 4000
D
Demo 2; XP−nSL; t_d = 4000
E
Demo 3; XP−EHH; t_d = 4000
F
Demo 3; XP−nSL; t_d = 4000
Power
0.0
0.2
0.4
0.6
0.8
1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S45. Power difference between unphased implementations of XP-EHH (A, C, and E) and XP-nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 2 (C and D), and Demo 3 (E and F) with n = 20 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 4000$ is the time in generations since the two populations diverged.

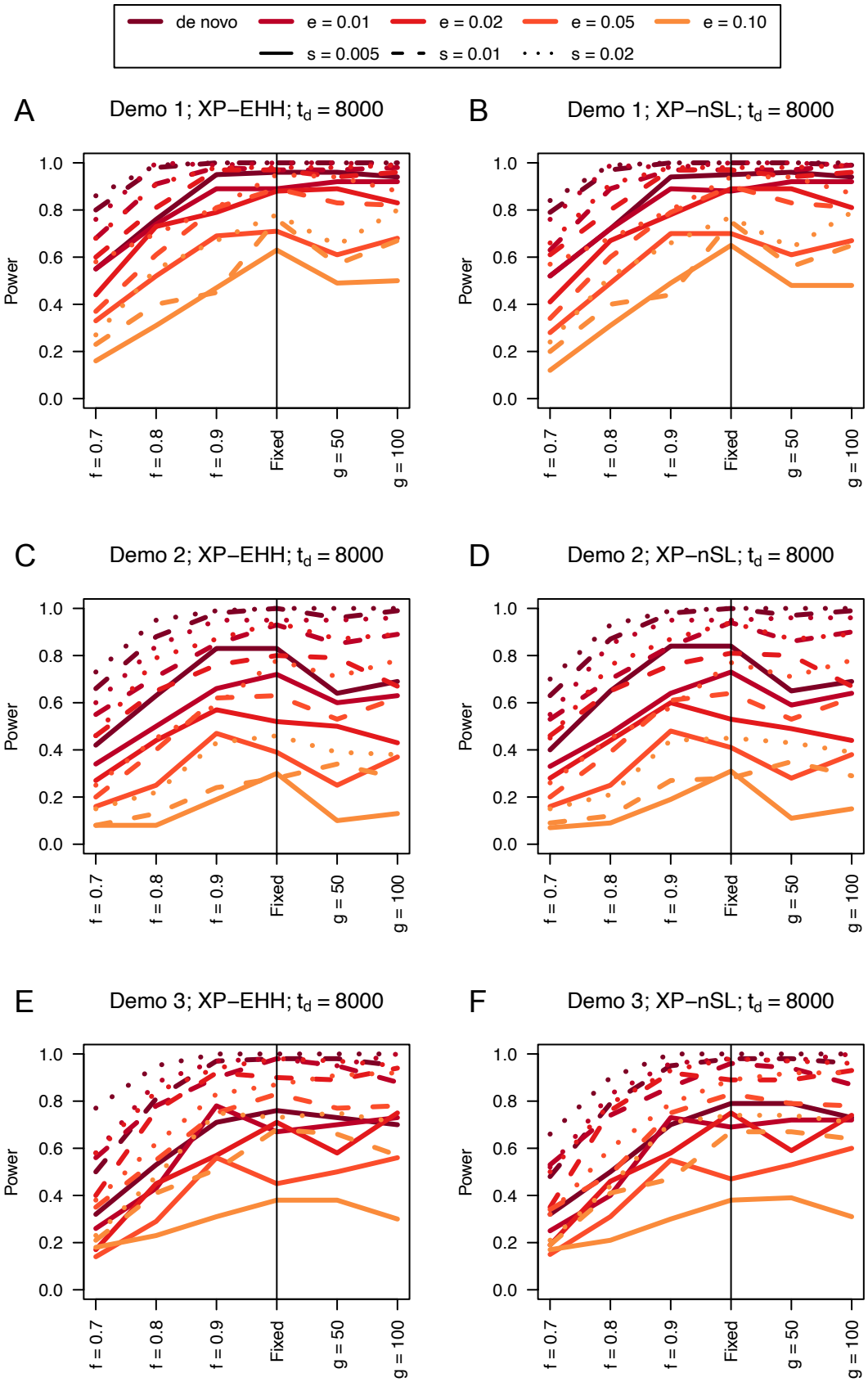

de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1; XP−EHH; t_d = 8000
B
Demo 1; XP−nSL; t_d = 8000
C
Demo 2; XP−EHH; t_d = 8000
D
Demo 2; XP−nSL; t_d = 8000
E
Demo 3; XP−EHH; t_d = 8000
F
Demo 3; XP−nSL; t_d = 8000
Power
0.0
0.2
0.4
0.6
0.8
1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S46. Power difference between unphased implementations of XP-EHH (A, C, and E) and XP-nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 2 (C and D), and Demo 3 (E and F) with n = 20 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 8000$ is the time in generations since the two populations diverged.

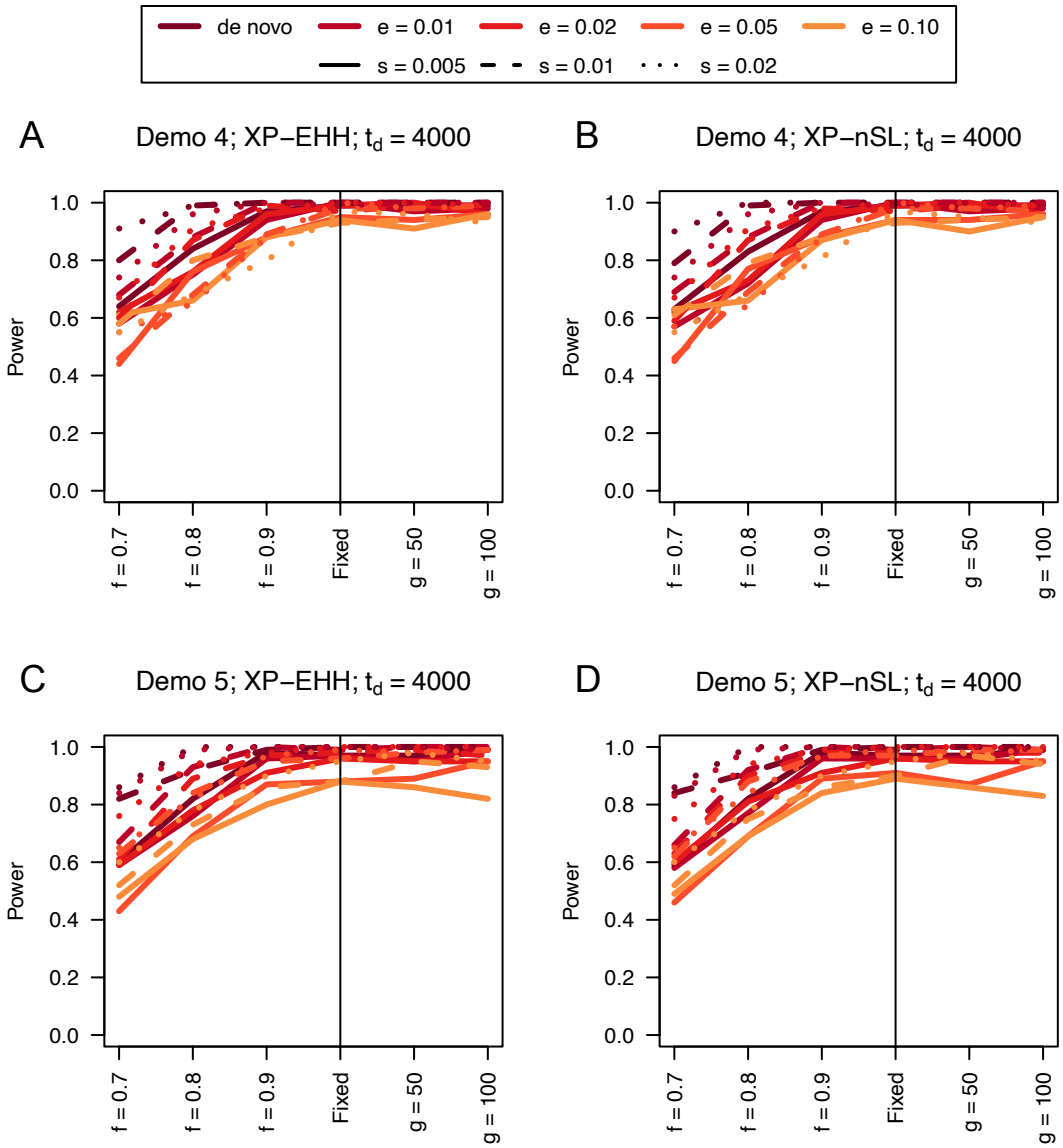


Figure S47. Power curves for unphased implementations of XP-EHH (A and C) and XP-nSL (B and D) under demographic histories Demo 4 (A and B), and Demo 5 (C and D) with n = 20 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 4000$ is the time in generations since the two populations diverged.

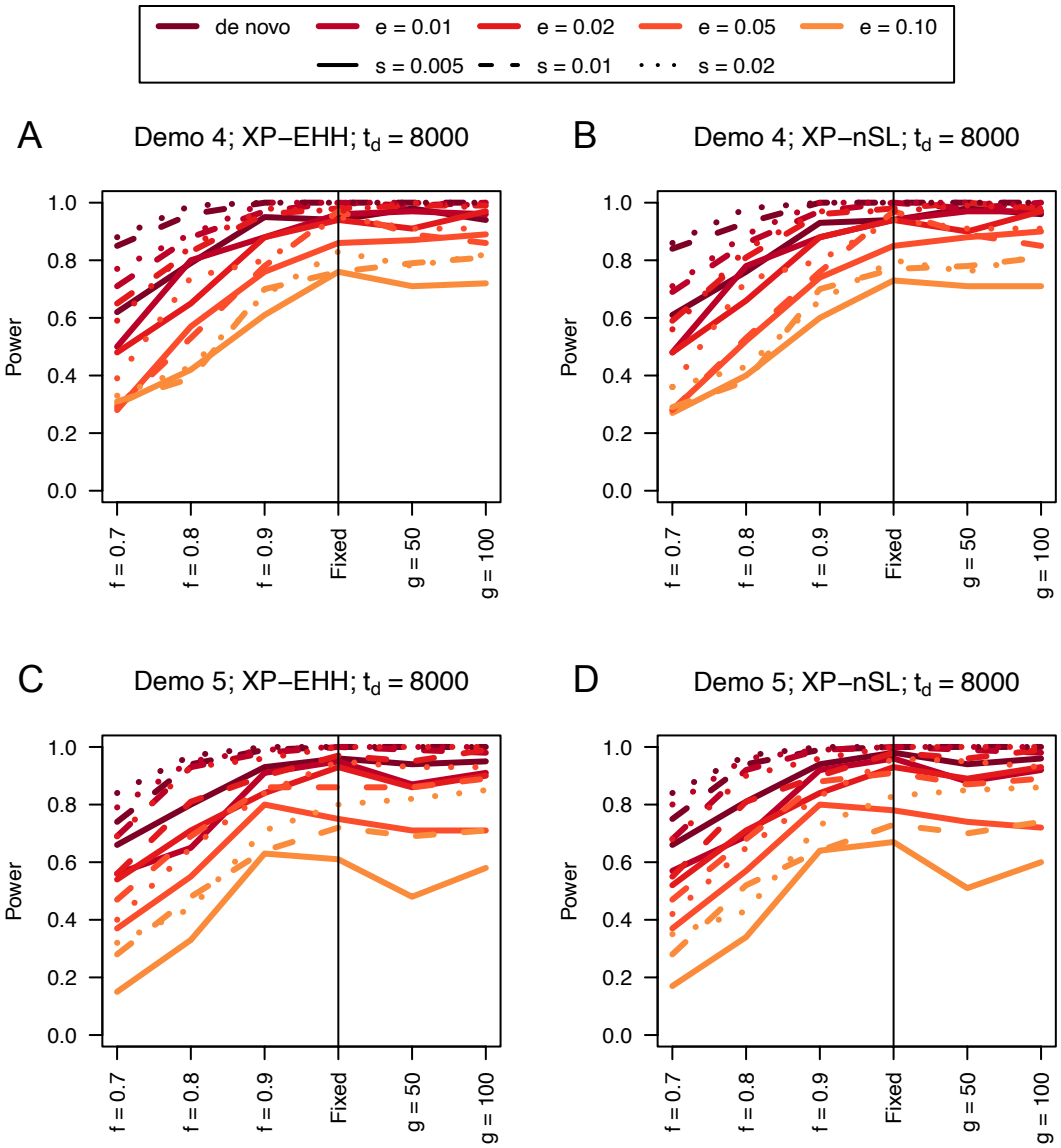


Figure S48. Power curves for unphased implementations of XP-EHH (A and C) and XP-nSL (B and D) under demographic histories Demo 4 (A and B), and Demo 5 (C and D) with n = 20 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 8000$ is the time in generations since the two populations diverged.

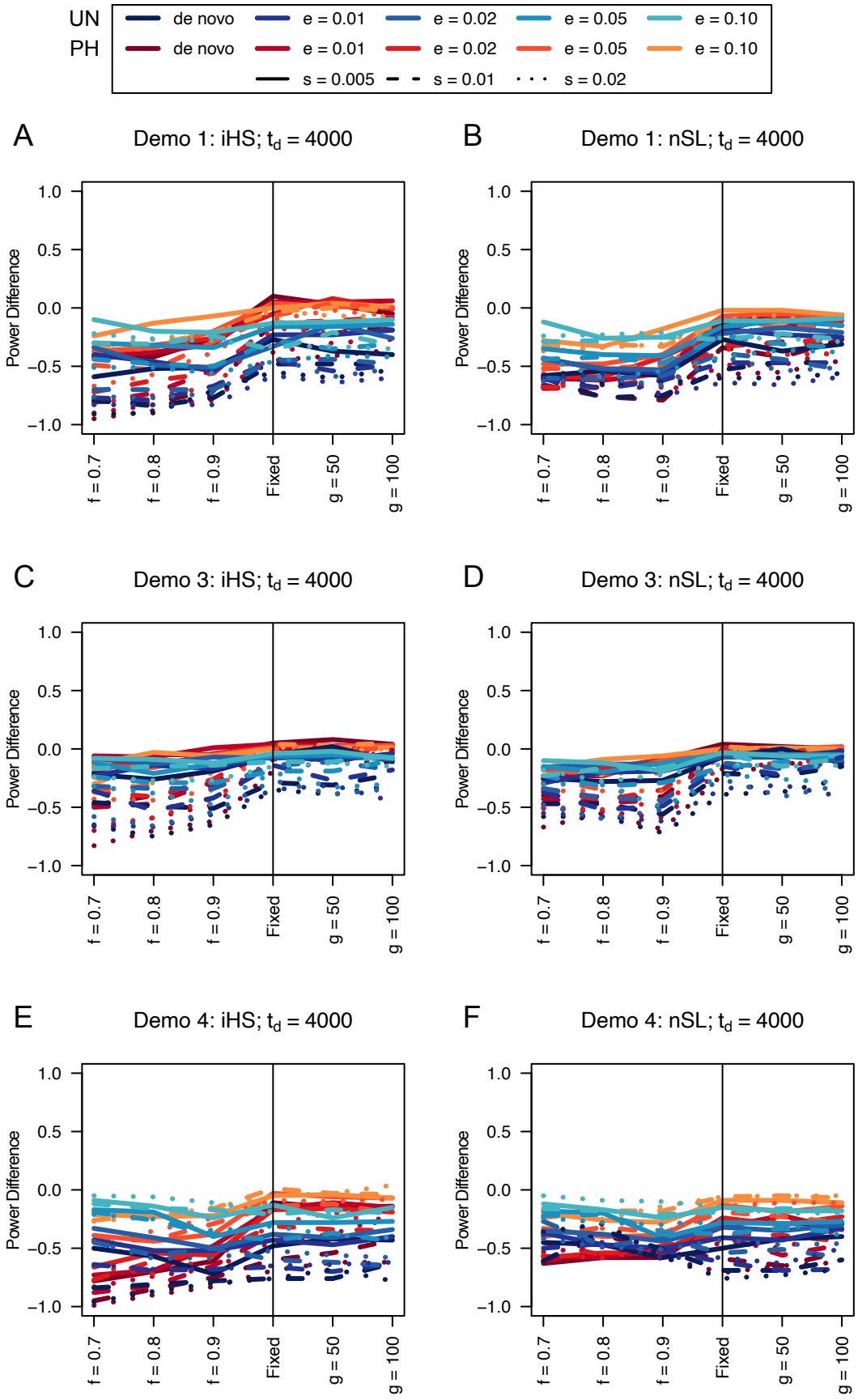

UN
PH
de novo
de novo
e = 0.01
e = 0.01
e = 0.02
e = 0.02
e = 0.05
e = 0.05
e = 0.10
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1: iHS; t_d = 4000
B
Demo 1: nSL; t_d = 4000
C
Demo 3: iHS; t_d = 4000
D
Demo 3: nSL; t_d = 4000
E
Demo 4: iHS; t_d = 4000
F
Demo 4: nSL; t_d = 4000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S49. Power difference between unphased implementations of iHS (A, C, and E) and nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 3 (C and D), and Demo 4 (E and F) with n = 20 diploid samples. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 4000$ is the time in generations since the two populations diverged.

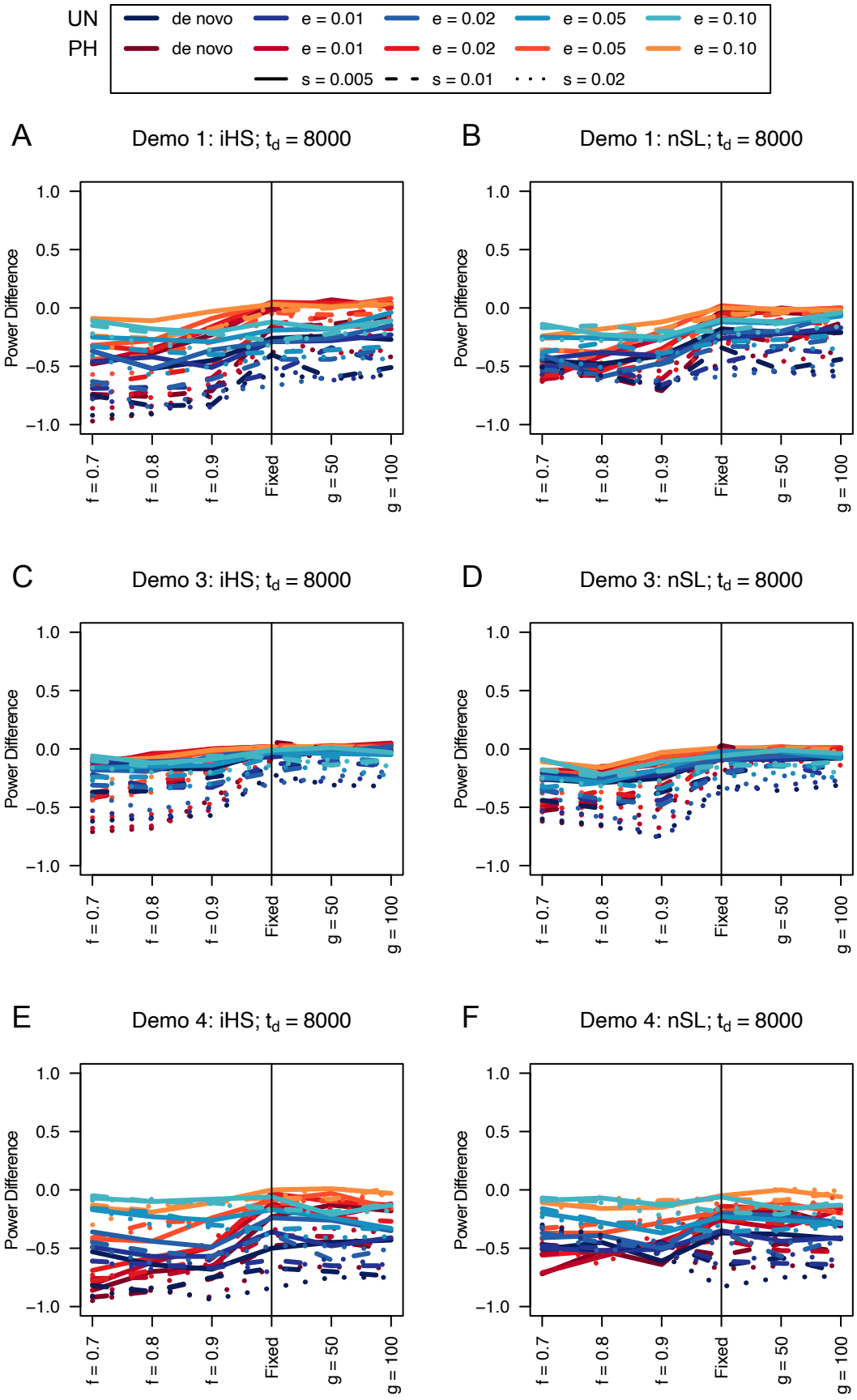

UN
PH
de novo
de novo
e = 0.01
e = 0.01
e = 0.02
e = 0.02
e = 0.05
e = 0.05
e = 0.10
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1: iHS; t_d = 8000
B
Demo 1: nSL; t_d = 8000
C
Demo 3: iHS; t_d = 8000
D
Demo 3: nSL; t_d = 8000
E
Demo 4: iHS; t_d = 8000
F
Demo 4: nSL; t_d = 8000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S50. Power difference between unphased implementations of iHS (A, C, and E) and nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 3 (C and D), and Demo 4 (E and F) with n = 20 diploid samples. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 8000$ is the time in generations since the two populations diverged.

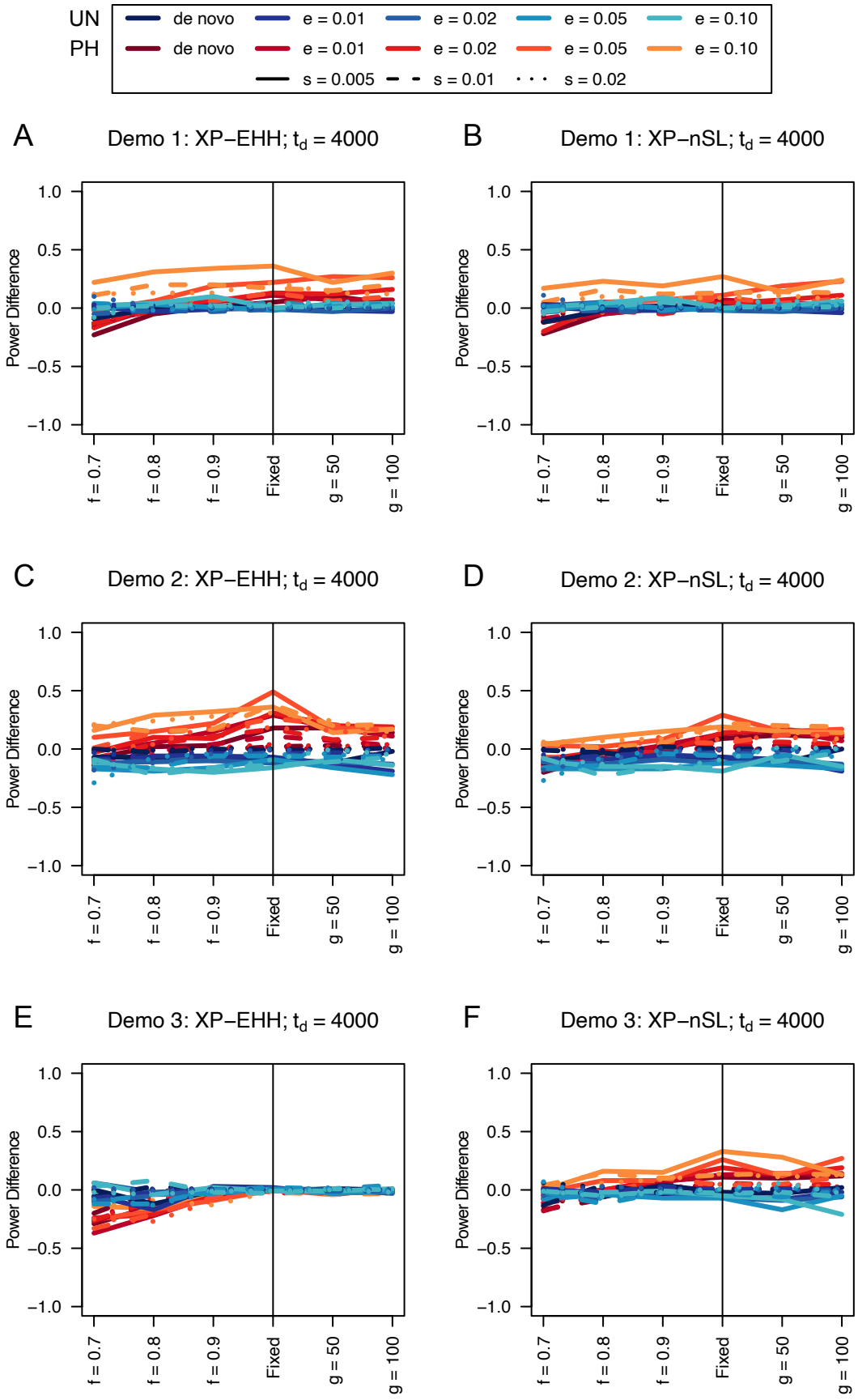

UN
PH
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1: XP−EHH; t_d = 4000
B
Demo 1: XP−nSL; t_d = 4000
C
Demo 2: XP−EHH; t_d = 4000
D
Demo 2: XP−nSL; t_d = 4000
E
Demo 3: XP−EHH; t_d = 4000
F
Demo 3: XP−nSL; t_d = 4000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S51. Power difference between unphased implementations of XP-EHH (A, C, and E) and XP-nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 2 (C and D), and Demo 3 (E and F) with n = 20 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 4000$ is the time in generations since the two populations diverged.

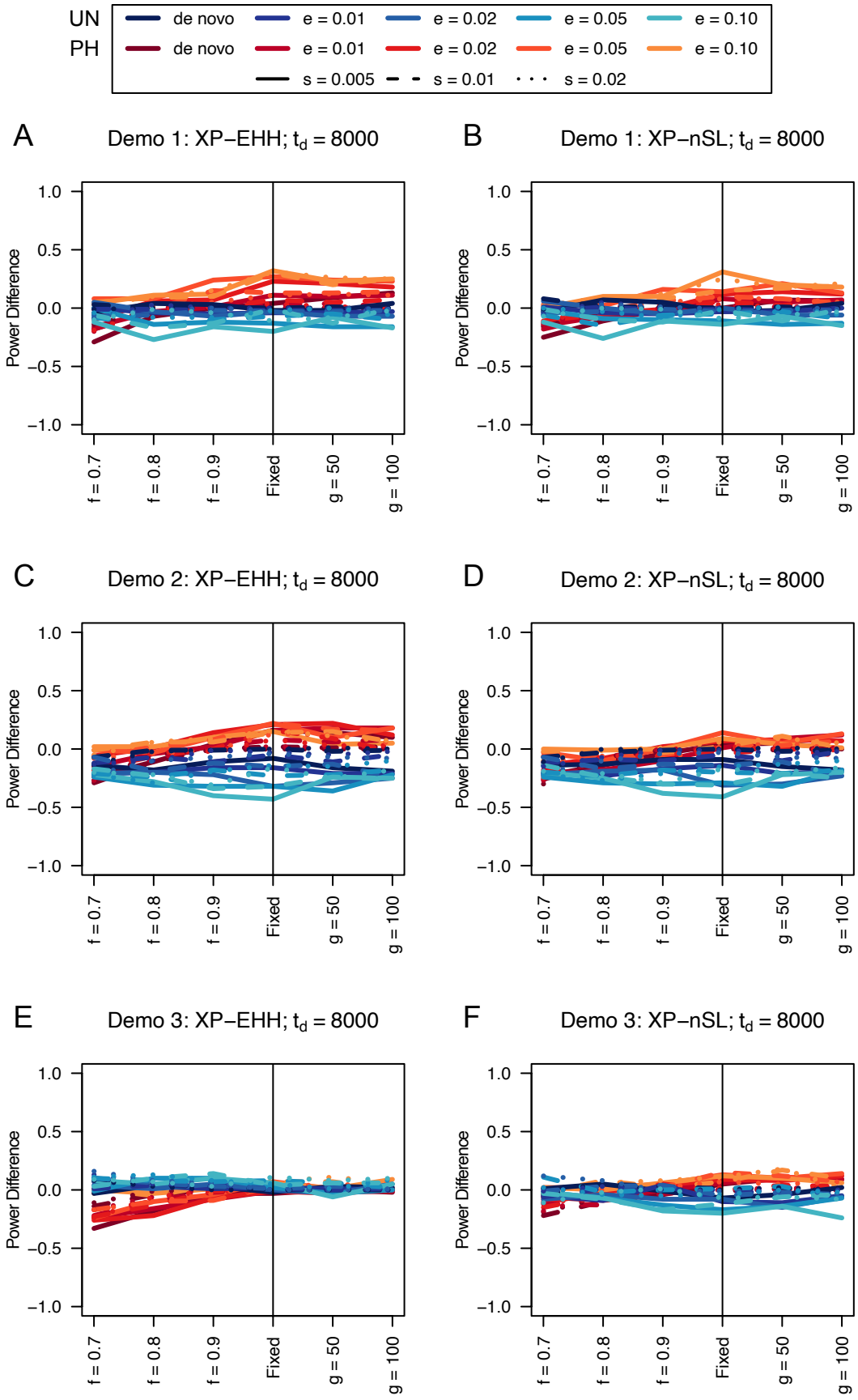

UN
PH
de novo
de novo
e = 0.01
e = 0.01
e = 0.02
e = 0.02
e = 0.05
e = 0.05
e = 0.10
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1: XP−EHH; t_d = 8000
B
Demo 1: XP−nSL; t_d = 8000
C
Demo 2: XP−EHH; t_d = 8000
D
Demo 2: XP−nSL; t_d = 8000
E
Demo 3: XP−EHH; t_d = 8000
F
Demo 3: XP−nSL; t_d = 8000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S52. Power difference between unphased implementations of XP-EHH (A, C, and E) and XP-nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 2 (C and D), and Demo 3 (E and F) with n = 20 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 8000$ is the time in generations since the two populations diverged.

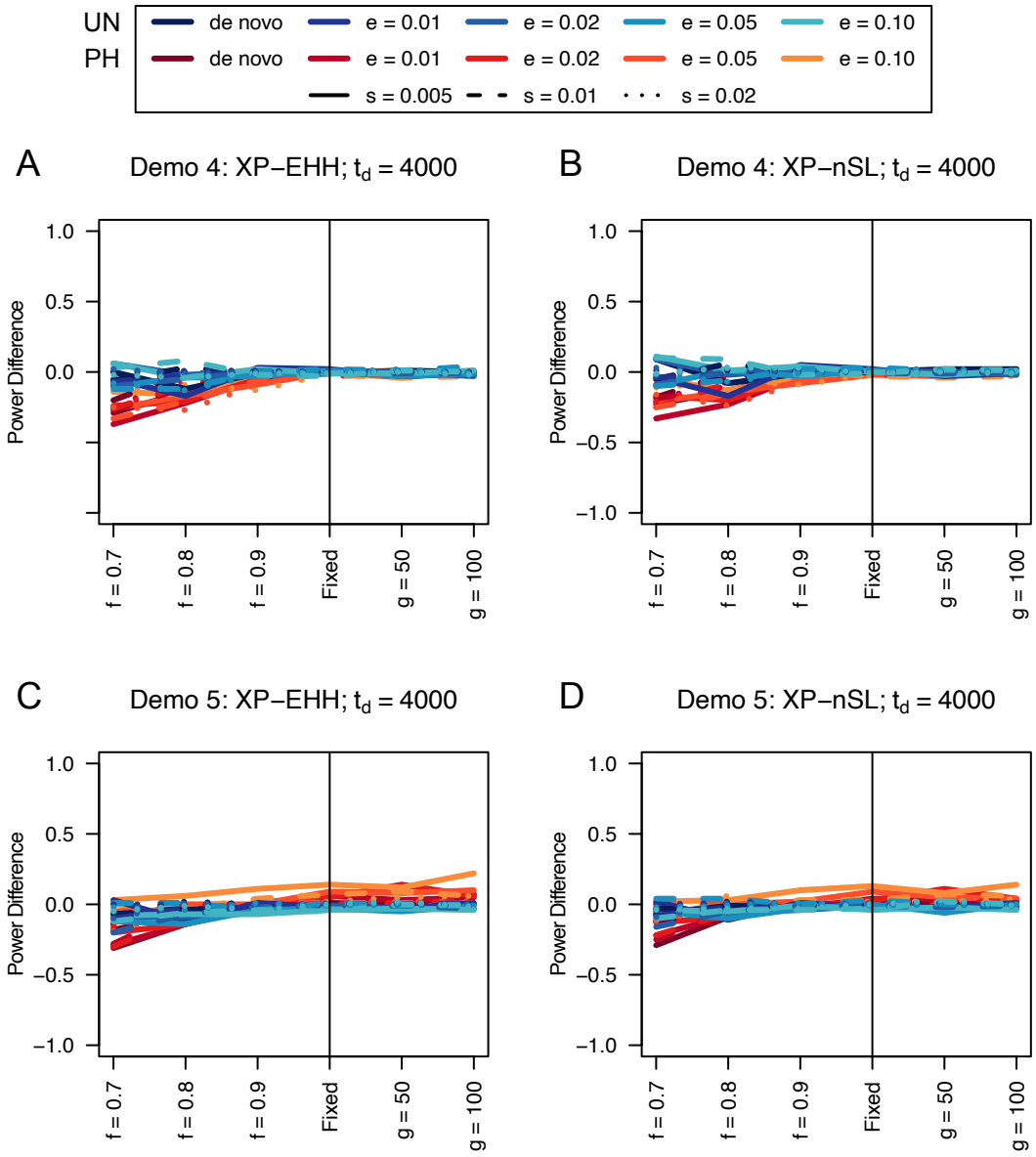


Figure S53. Power difference between unphased implementations of XP-EHH (A and C) and XP-nSL (B and D) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 4 (A and B), and Demo 5 (C and D) with n = 20 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 4000$ is the time in generations since the two populations diverged.

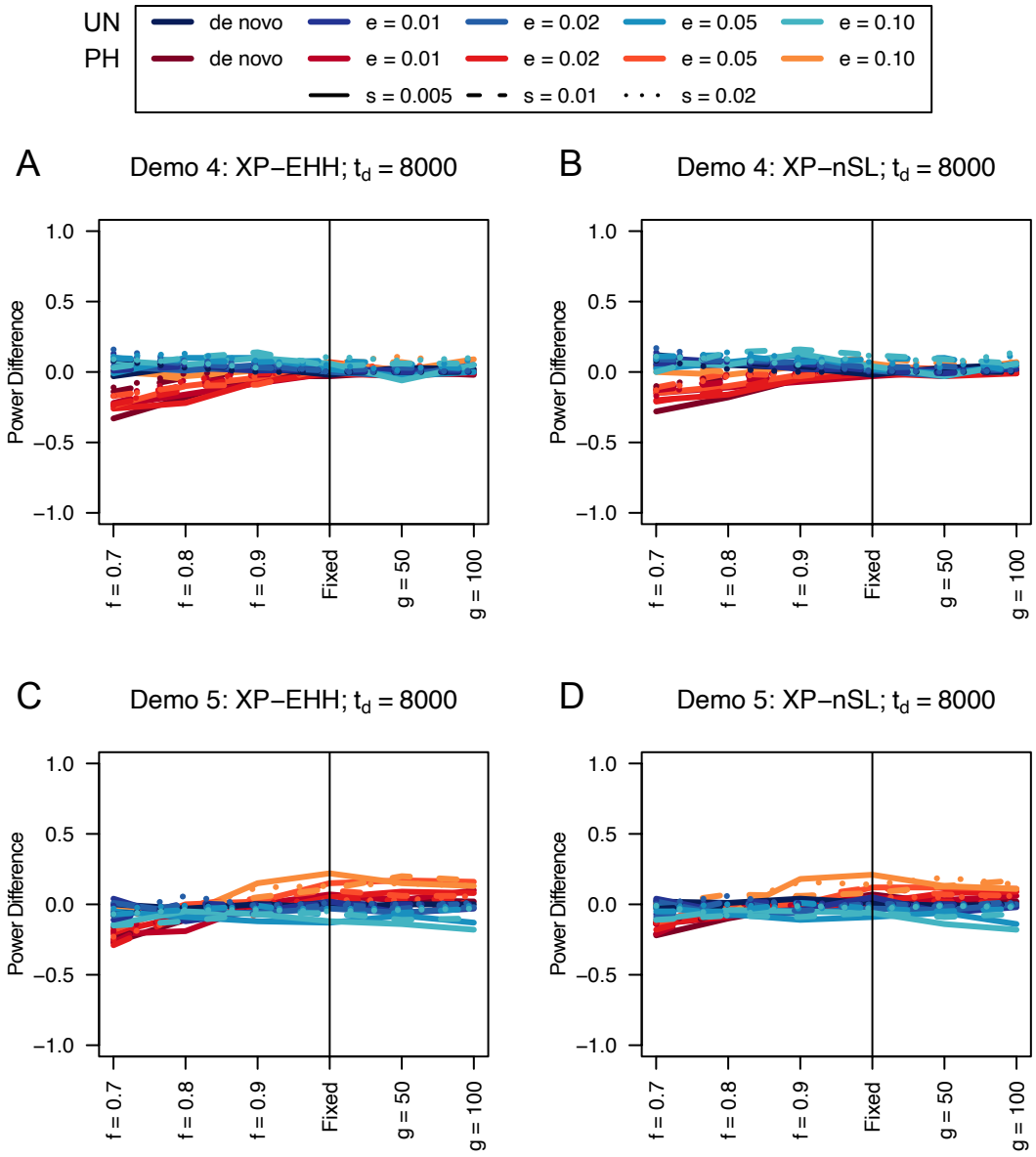


Table S54. Power difference between unphased implementations of XP-EHH (A and C) and XP-nSL (B and D) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 4 (A and B), and Demo 5 (C and D) with n = 20 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 8000$ is the time in generations since the two populations diverged.

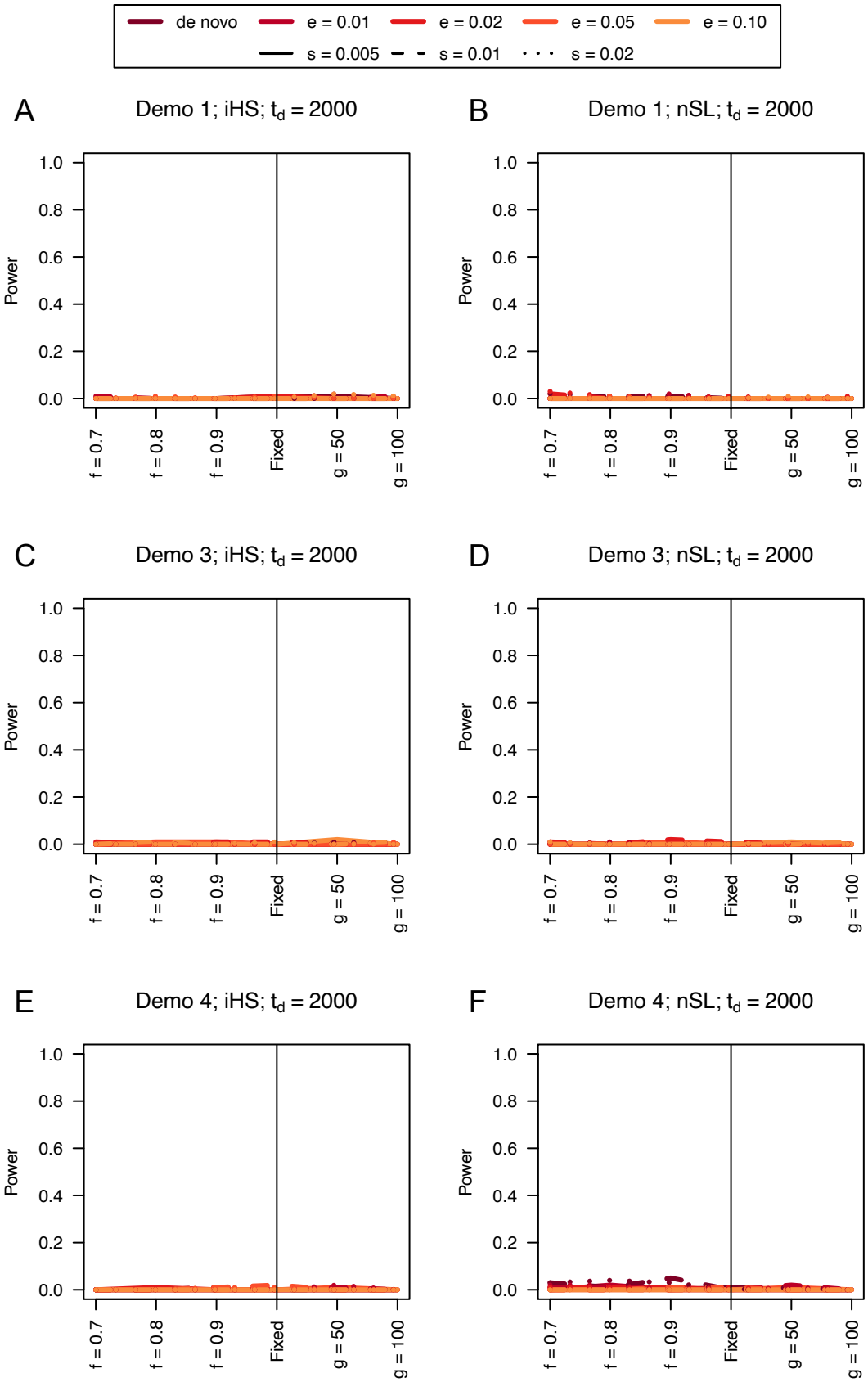
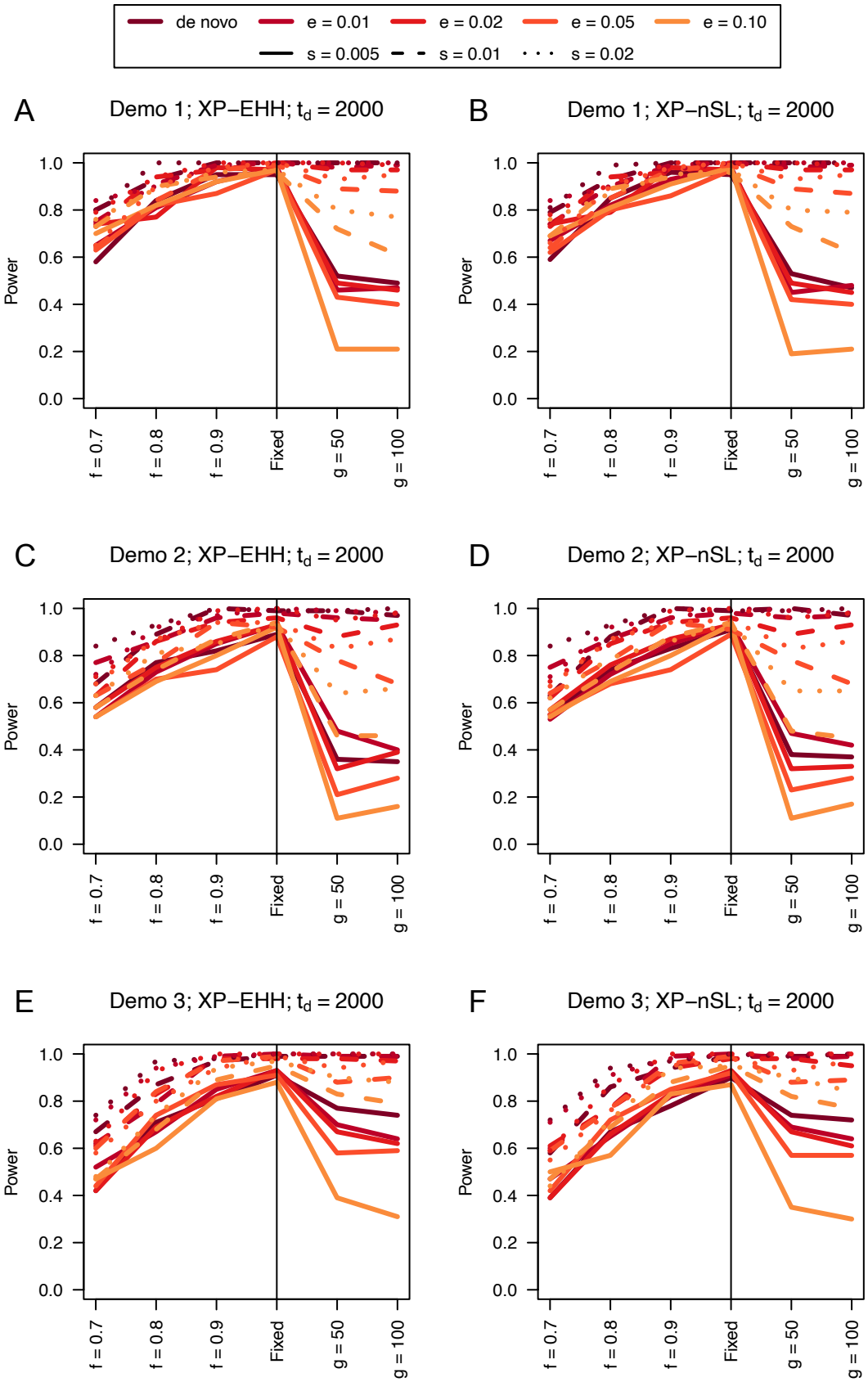

de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1; iHS; t_d = 2000
B
Demo 1; nSL; t_d = 2000
C
Demo 3; iHS; t_d = 2000
D
Demo 3; nSL; t_d = 2000
E
Demo 4; iHS; t_d = 2000
F
Demo 4; nSL; t_d = 2000
Power
0.0
0.2
0.4
0.6
0.8
1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S55. Power curves for unphased implementations of iHS (A, C, and E) and nSL (B, D, and F) under demographic histories Demo 1 (A and B), Demo 3 (C and D), and Demo 4 (E and F) with n = 10 diploid samples. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 2000$ is the time in generations since the two populations diverged.


de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1; XP−EHH; t_d = 2000
B
Demo 1; XP−nSL; t_d = 2000
C
Demo 2; XP−EHH; t_d = 2000
D
Demo 2; XP−nSL; t_d = 2000
E
Demo 3; XP−EHH; t_d = 2000
F
Demo 3; XP−nSL; t_d = 2000
Power
0.0
0.2
0.4
0.6
0.8
1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

611

Figure S56. Power curves for unphased implementations of XP-EHH (A, C, and E) and XP-nSL (B, D, and F) under demographic histories Demo 1 (A and B), Demo 2 (C and D), and Demo 3 (E and F) with n = 10 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 2000$ is the time in generations since the two populations diverged.

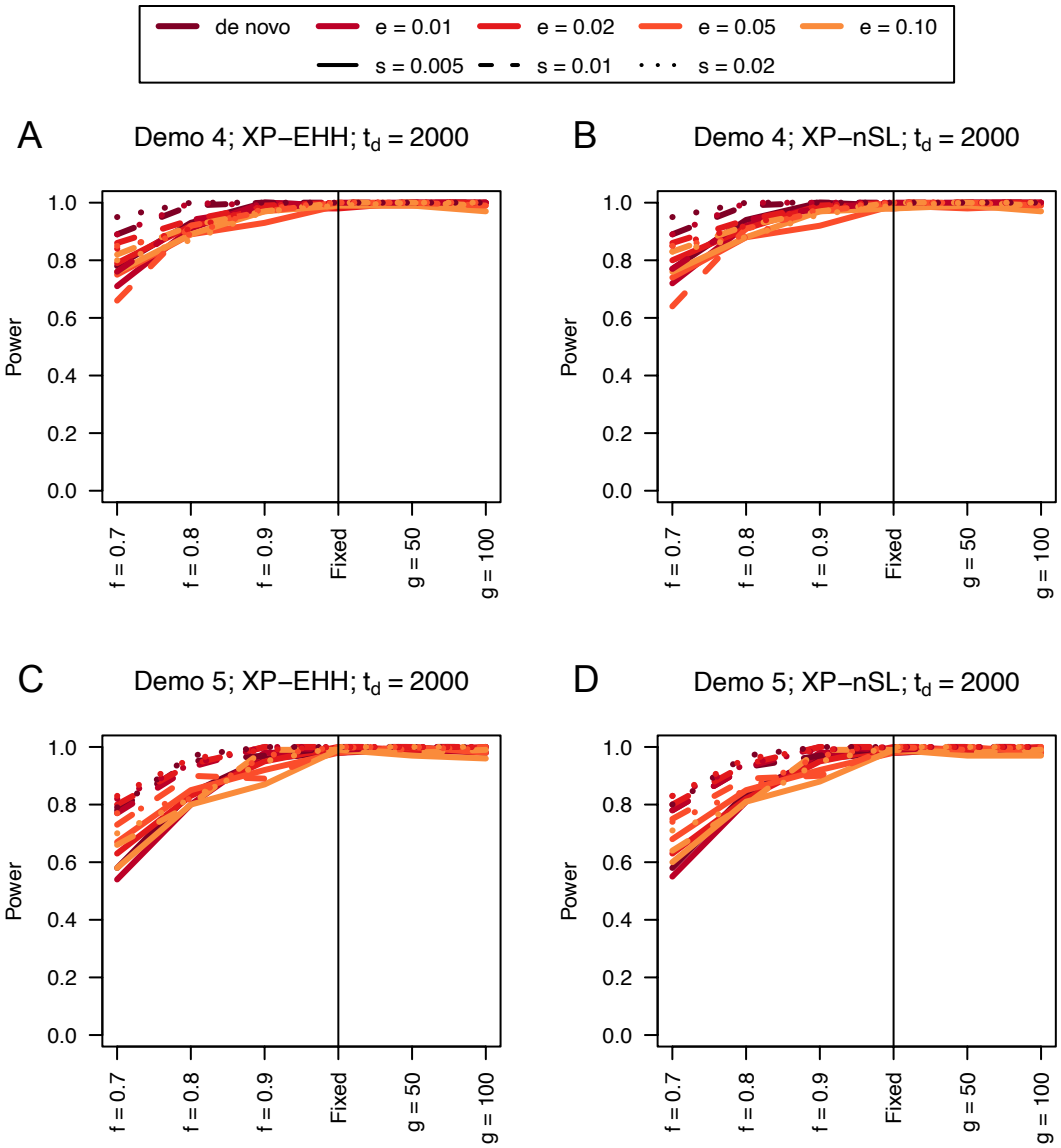


Figure S57. Power curves for unphased implementations of XP-EHH (A and C) and XP-nSL (B and D) under demographic histories Demo 4 (A and B), and Demo 5 (C and D) with n = 10 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 2000$ is the time in generations since the two populations diverged.

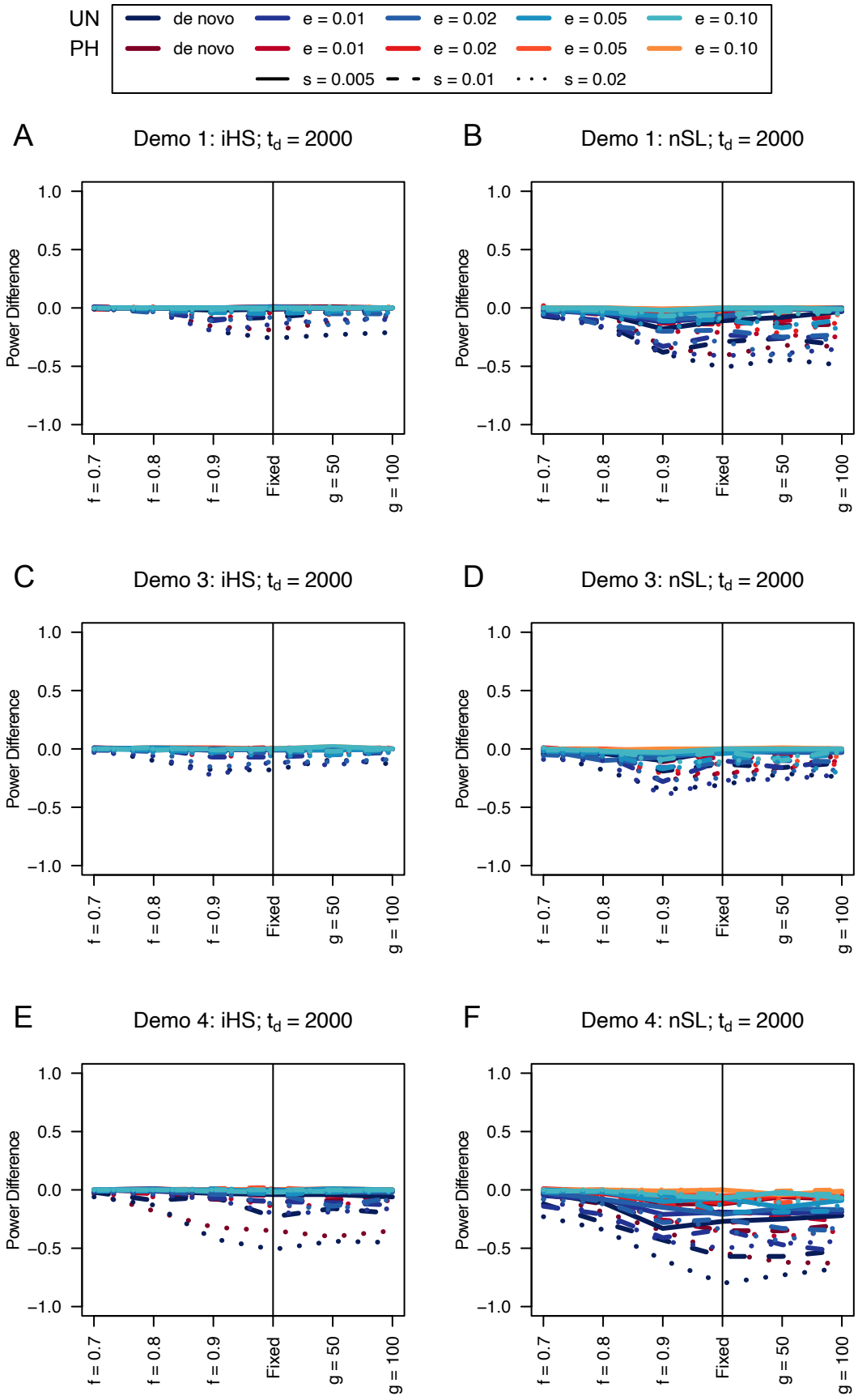

UN
PH
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1: iHS; t_d = 2000
B
Demo 1: nSL; t_d = 2000
C
Demo 3: iHS; t_d = 2000
D
Demo 3: nSL; t_d = 2000
E
Demo 4: iHS; t_d = 2000
F
Demo 4: nSL; t_d = 2000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S58. Power difference between unphased implementations of iHS (A, C, and E) and nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 3 (C and D), and Demo 4 (E and F) with n = 10 diploid samples. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 2000$ is the time in generations since the two populations diverged.

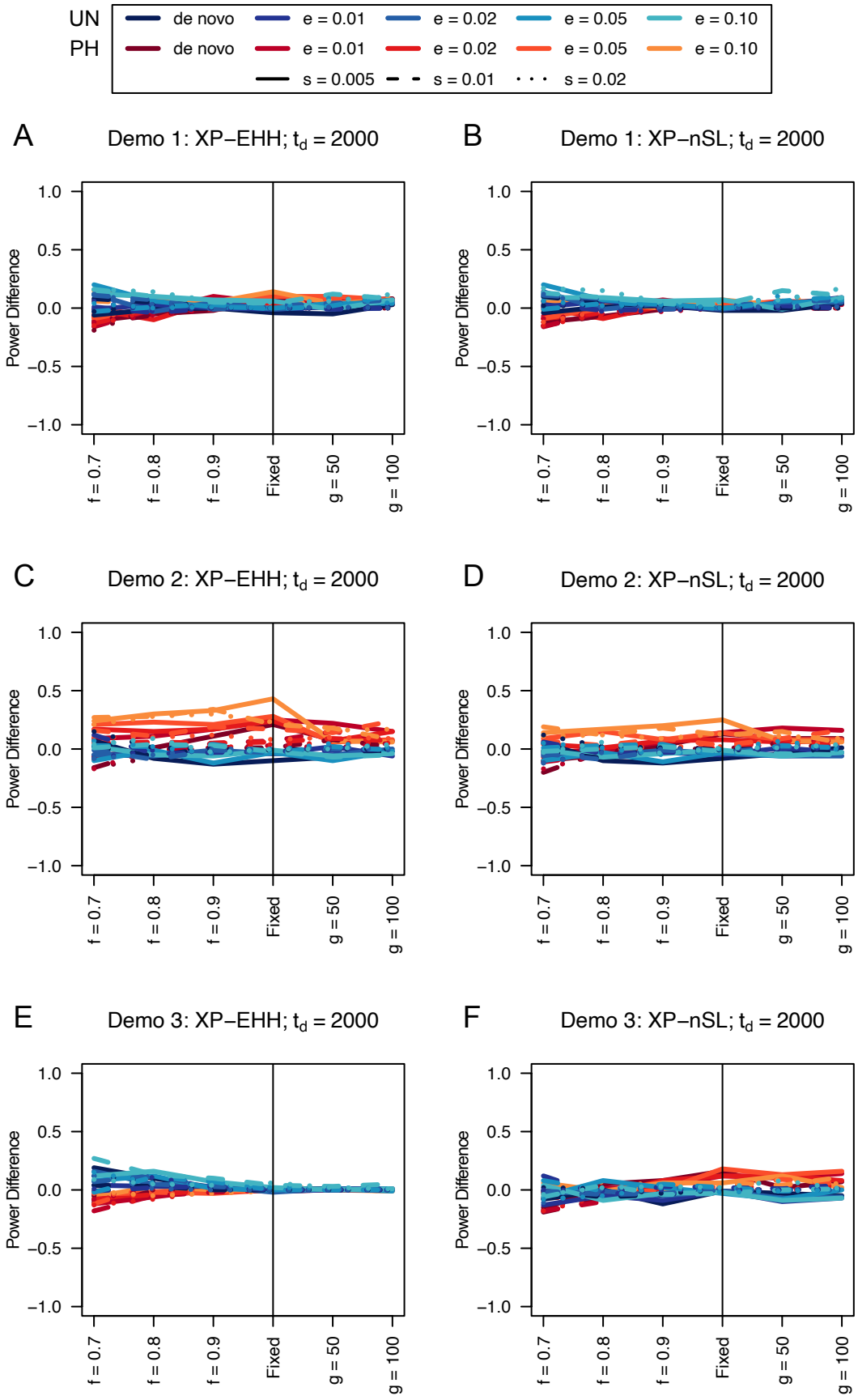

UN
PH
de novo
de novo
e = 0.01
e = 0.01
e = 0.02
e = 0.02
e = 0.05
e = 0.05
e = 0.10
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1: XP−EHH; t_d = 2000
B
Demo 1: XP−nSL; t_d = 2000
C
Demo 2: XP−EHH; t_d = 2000
D
Demo 2: XP−nSL; t_d = 2000
E
Demo 3: XP−EHH; t_d = 2000
F
Demo 3: XP−nSL; t_d = 2000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S59. Power difference between unphased implementations of XP-EHH (A, C, and E) and XP-nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 2 (C and D), and Demo 3 (E and F) with n = 10 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 2000$ is the time in generations since the two populations diverged.

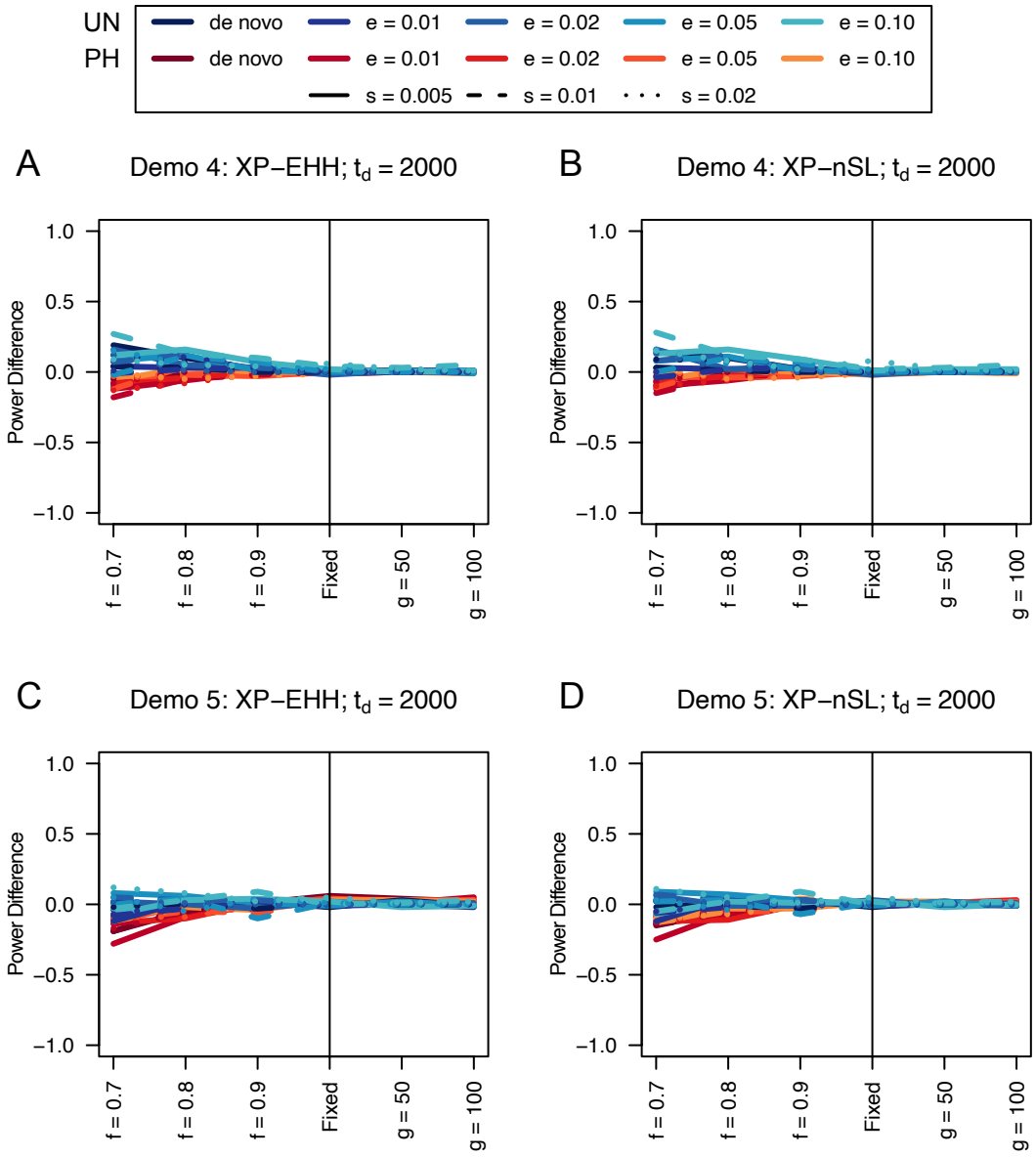
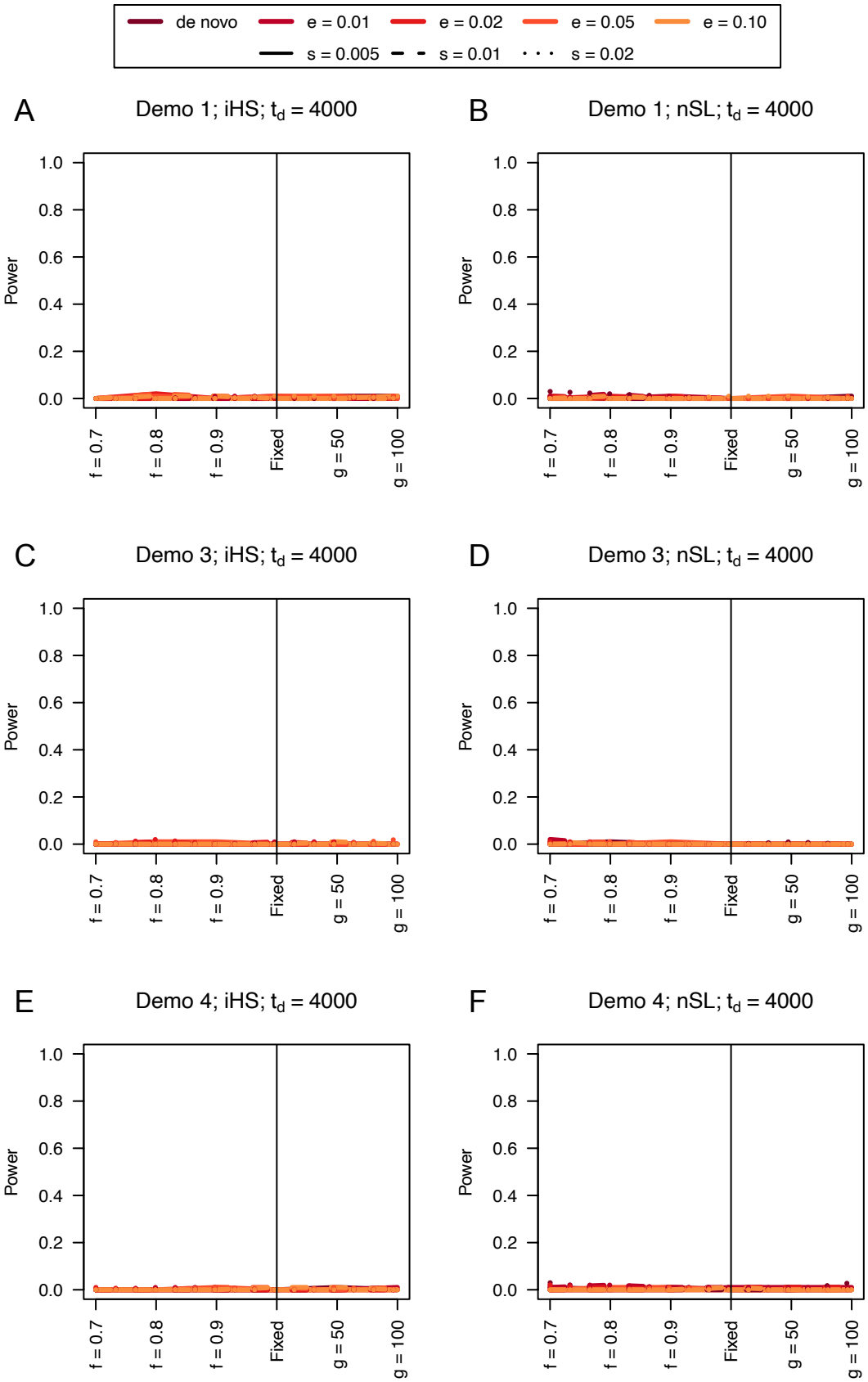


Figure S60. Power difference between unphased implementations of XP-EHH (A and C) and XP-nSL (B and D) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 4 (A and B), and Demo 5 (C and D) with n = 10 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 2000$ is the time in generations since the two populations diverged.


de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1; iHS; t_d = 4000
B
Demo 1; nSL; t_d = 4000
C
Demo 3; iHS; t_d = 4000
D
Demo 3; nSL; t_d = 4000
E
Demo 4; iHS; t_d = 4000
F
Demo 4; nSL; t_d = 4000
Power
0.0
0.2
0.4
0.6
0.8
1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

674

Figure S61. Power curves for unphased implementations of iHS (A, C, and E) and nSL (B, D, and F) under demographic histories Demo 1 (A and B), Demo 3 (C and D), and Demo 4 (E and F) with n = 10 diploid samples. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 4000$ is the time in generations since the two populations diverged.

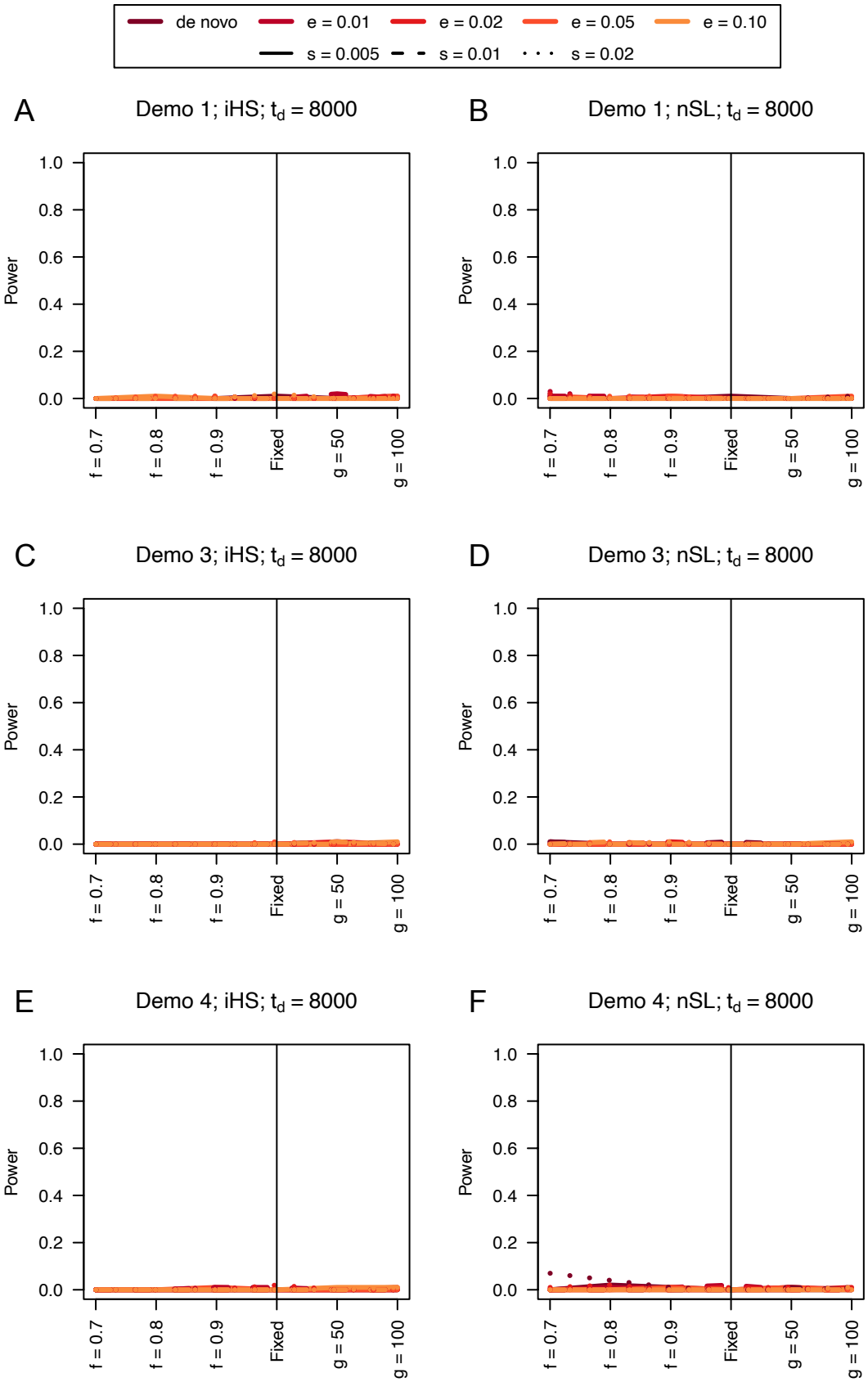
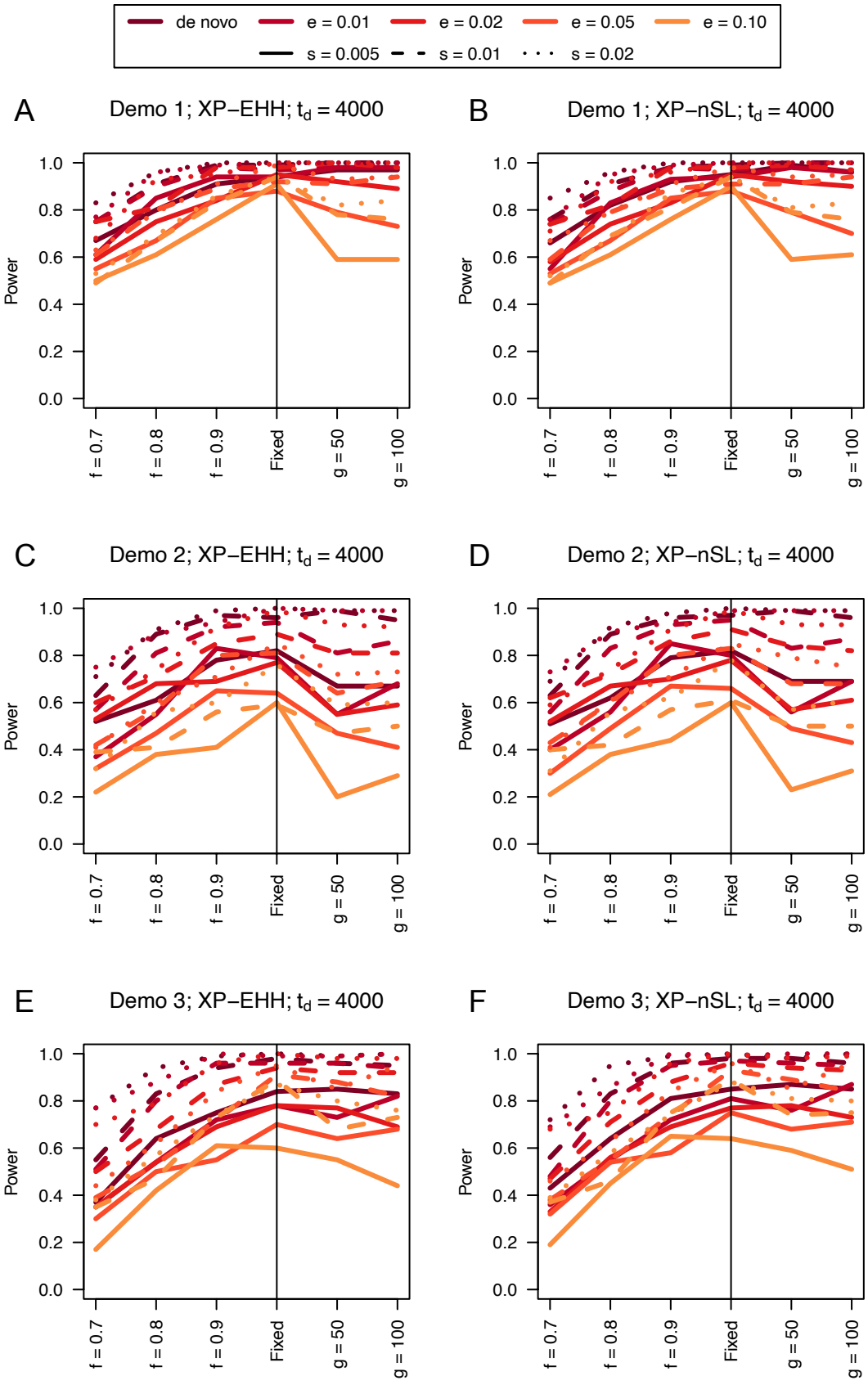

de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1; iHS; t_d = 8000
B
Demo 1; nSL; t_d = 8000
C
Demo 3; iHS; t_d = 8000
D
Demo 3; nSL; t_d = 8000
E
Demo 4; iHS; t_d = 8000
F
Demo 4; nSL; t_d = 8000
Power
0.0
0.2
0.4
0.6
0.8
1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S62. Power curves for unphased implementations of iHS (A, C, and E) and nSL (B, D, and F) under demographic histories Demo 1 (A and B), Demo 3 (C and D), and Demo 4 (E and F) with n = 10 diploid samples. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 8000$ is the time in generations since the two populations diverged.


de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1; XP−EHH; t_d = 4000
B
Demo 1; XP−nSL; t_d = 4000
C
Demo 2; XP−EHH; t_d = 4000
D
Demo 2; XP−nSL; t_d = 4000
E
Demo 3; XP−EHH; t_d = 4000
F
Demo 3; XP−nSL; t_d = 4000
Power
0.0
0.2
0.4
0.6
0.8
1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

686

Figure S63. Power difference between unphased implementations of XP-EHH (A, C, and E) and XP-nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 2 (C and D), and Demo 3 (E and F) with n = 10 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 4000$ is the time in generations since the two populations diverged.

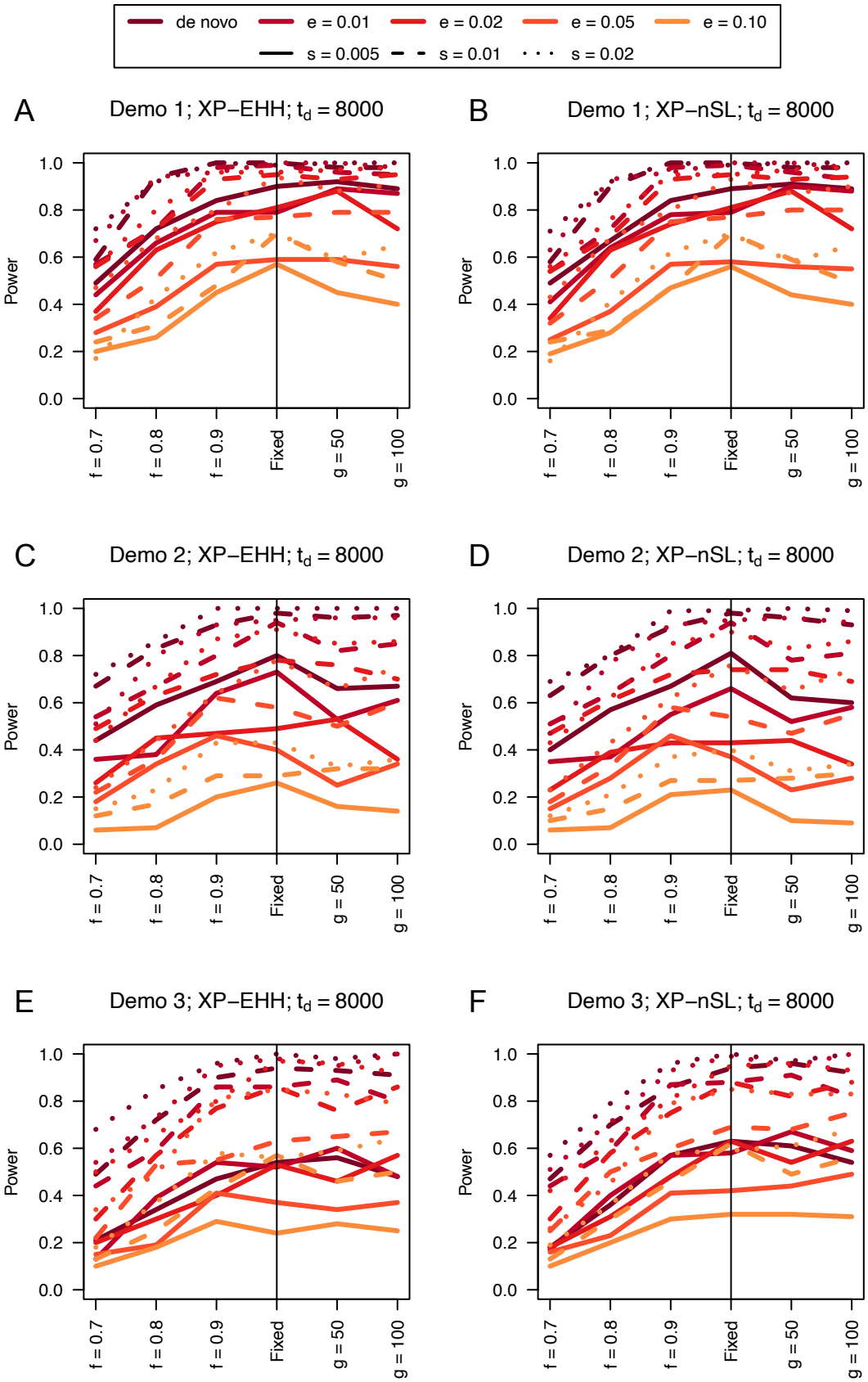

de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1; XP−EHH; t_d = 8000
B
Demo 1; XP−nSL; t_d = 8000
C
Demo 2; XP−EHH; t_d = 8000
D
Demo 2; XP−nSL; t_d = 8000
E
Demo 3; XP−EHH; t_d = 8000
F
Demo 3; XP−nSL; t_d = 8000
Power
0.0
0.2
0.4
0.6
0.8
1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S64. Power difference between unphased implementations of XP-EHH (A, C, and E) and XP-nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 2 (C and D), and Demo 3 (E and F) with n = 10 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 8000$ is the time in generations since the two populations diverged.

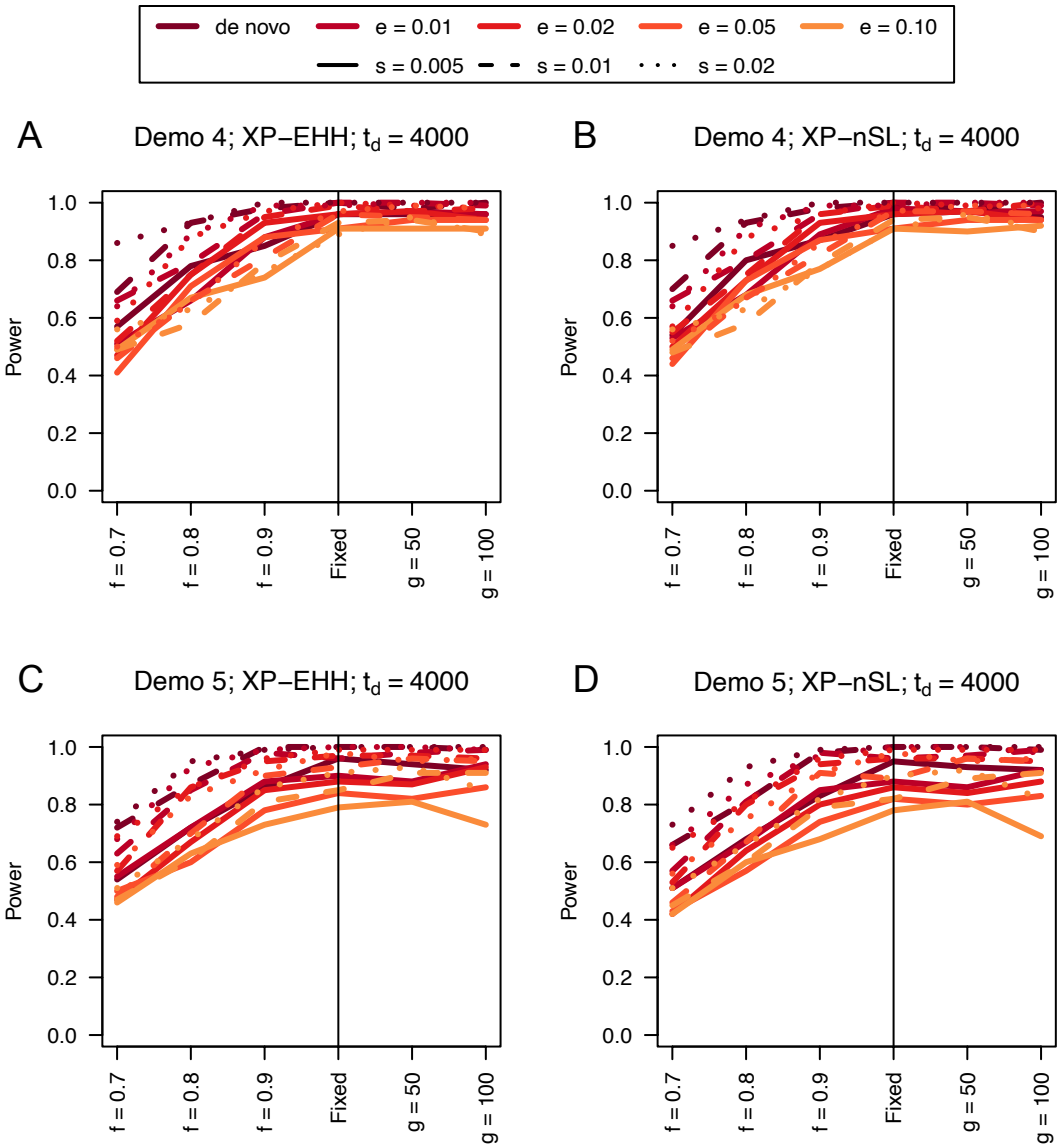


Figure S65. Power curves for unphased implementations of XP-EHH (A and C) and XP-nSL (B and D) under demographic histories Demo 4 (A and B), and Demo 5 (C and D) with n = 10 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 4000$ is the time in generations since the two populations diverged.

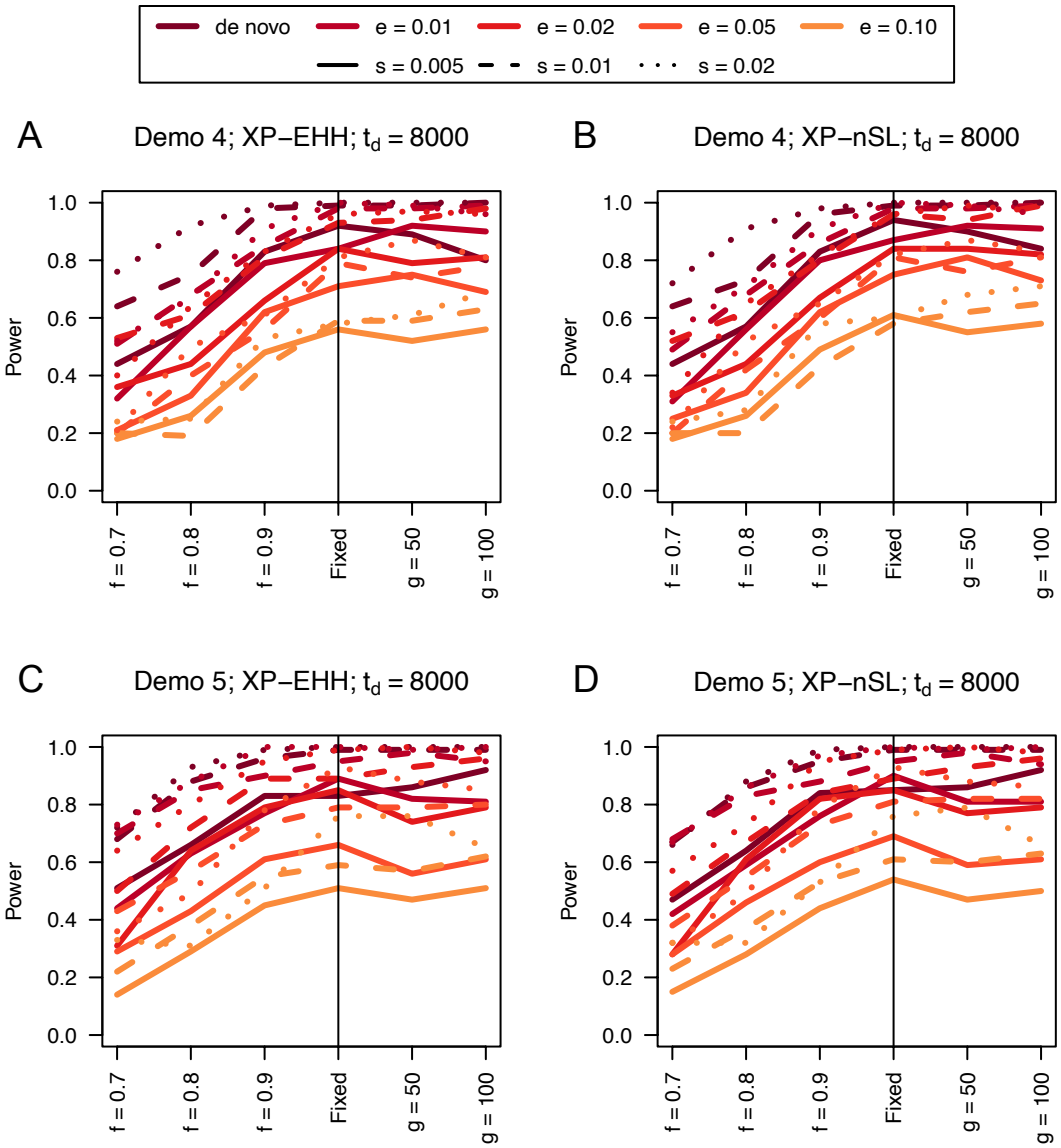


Figure S66. Power curves for unphased implementations of XP-EHH (A and C) and XP-nSL (B and D) under demographic histories Demo 4 (A and B), and Demo 5 (C and D) with n = 10 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 8000$ is the time in generations since the two populations diverged.

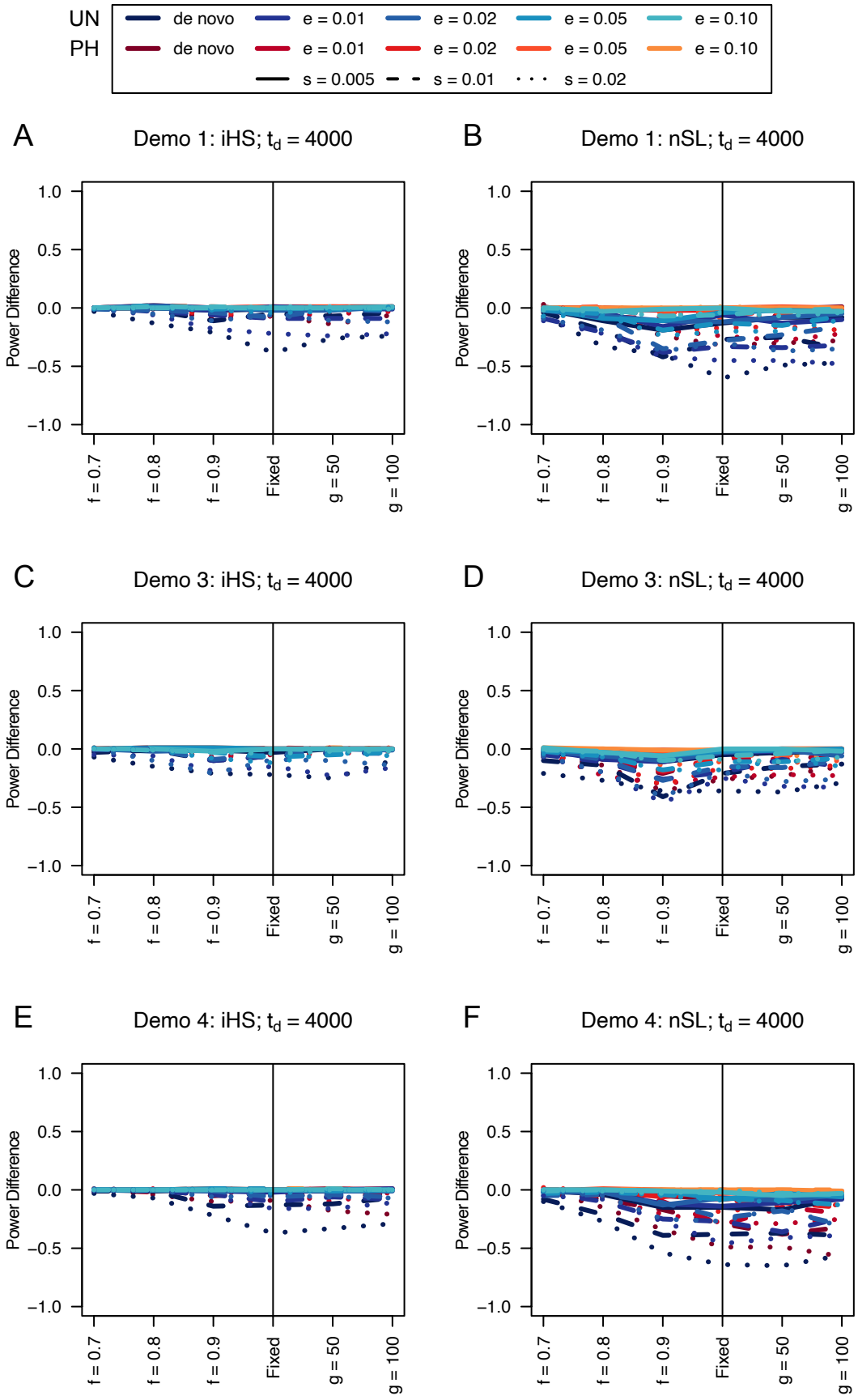

UN
PH
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1: iHS; t_d = 4000
B
Demo 1: nSL; t_d = 4000
C
Demo 3: iHS; t_d = 4000
D
Demo 3: nSL; t_d = 4000
E
Demo 4: iHS; t_d = 4000
F
Demo 4: nSL; t_d = 4000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S67. Power difference between unphased implementations of iHS (A, C, and E) and nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 3 (C and D), and Demo 4 (E and F) with n = 10 diploid samples. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 4000$ is the time in generations since the two populations diverged.

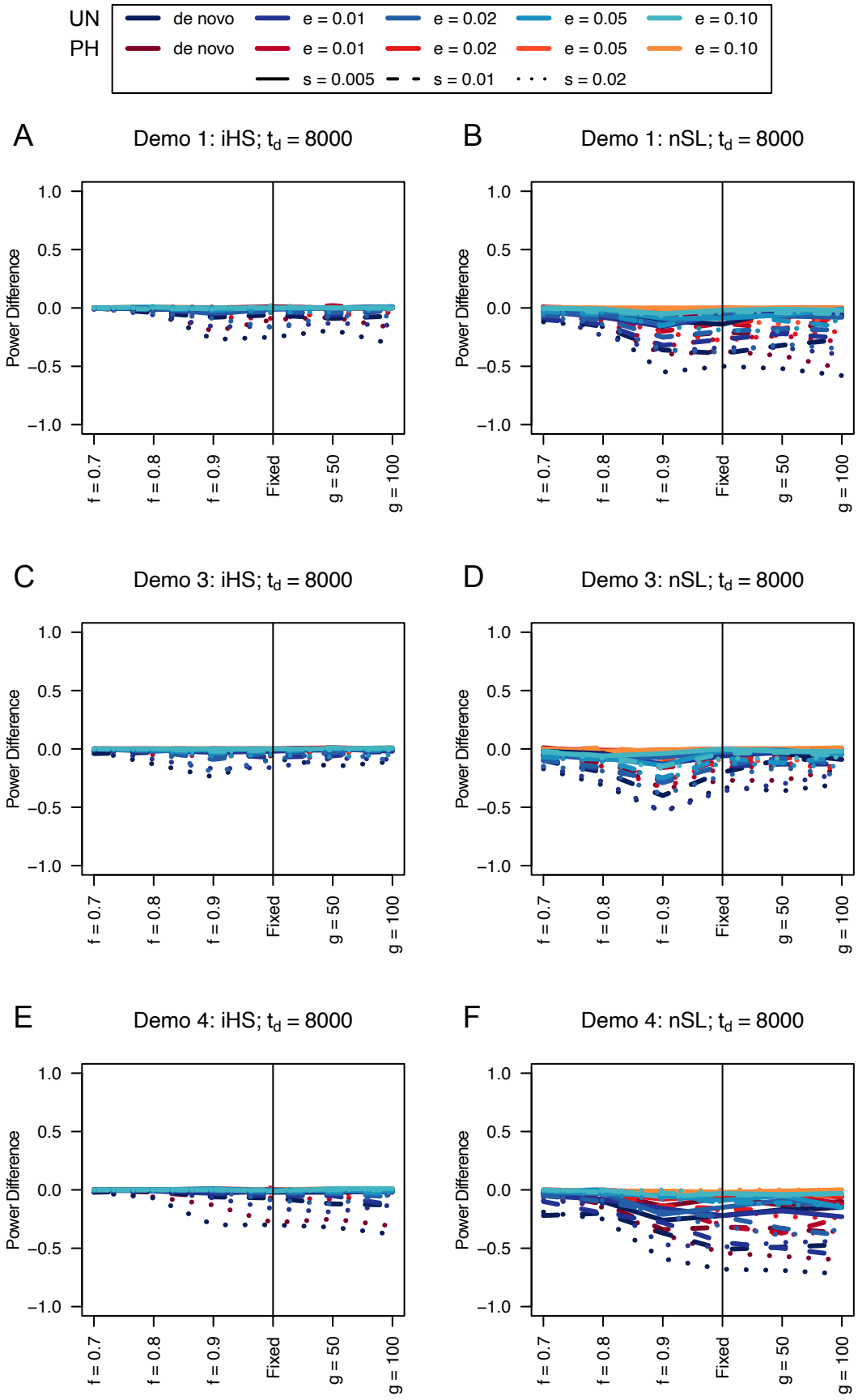

UN
PH
de novo
de novo
e = 0.01
e = 0.01
e = 0.02
e = 0.02
e = 0.05
e = 0.05
e = 0.10
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1: iHS; t_d = 8000
B
Demo 1: nSL; t_d = 8000
C
Demo 3: iHS; t_d = 8000
D
Demo 3: nSL; t_d = 8000
E
Demo 4: iHS; t_d = 8000
F
Demo 4: nSL; t_d = 8000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S68. Power difference between unphased implementations of iHS (A, C, and E) and nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 3 (C and D), and Demo 4 (E and F) with n = 10 diploid samples. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 8000$ is the time in generations since the two populations diverged.

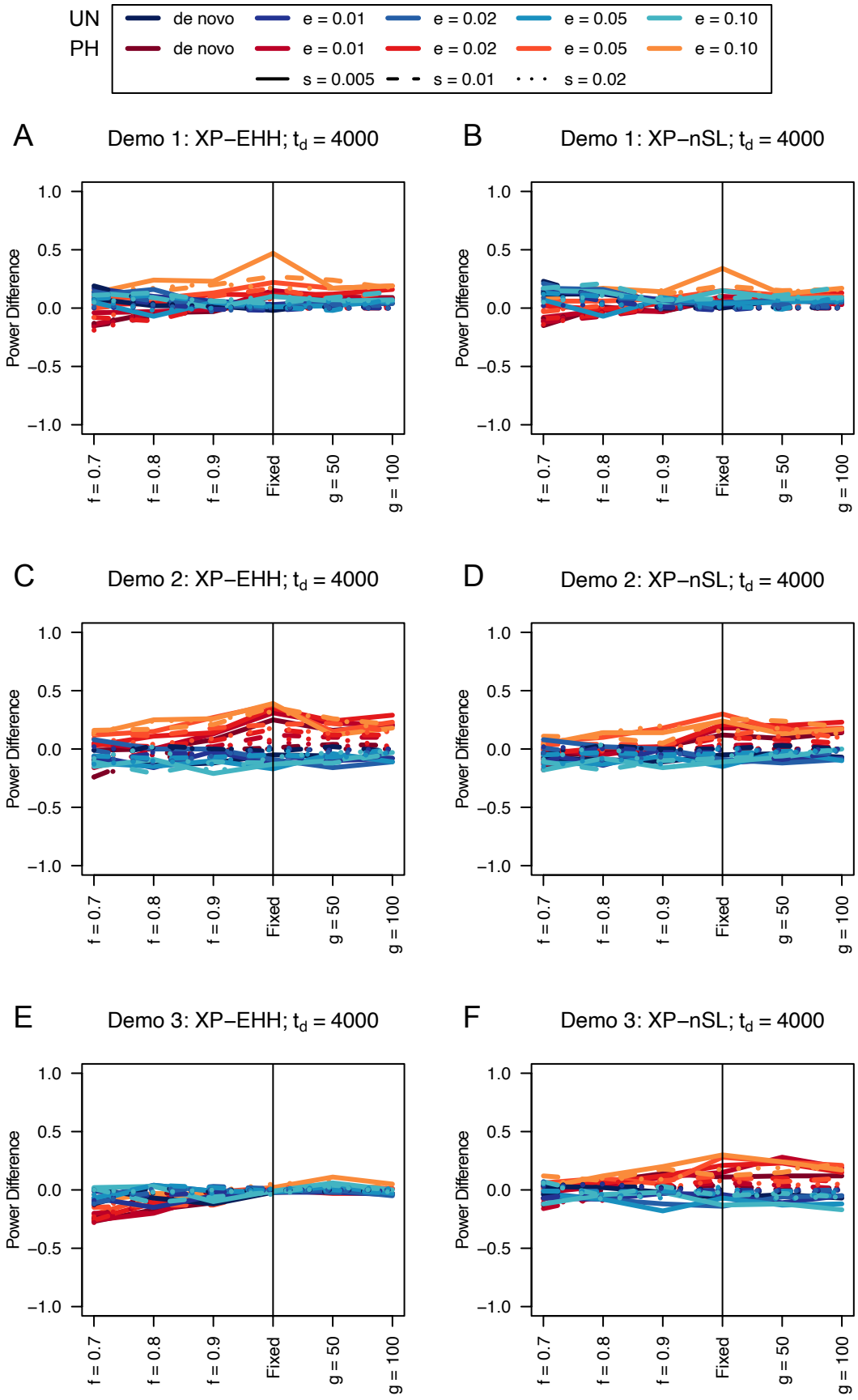

UN
PH
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1: XP−EHH; t_d = 4000
B
Demo 1: XP−nSL; t_d = 4000
C
Demo 2: XP−EHH; t_d = 4000
D
Demo 2: XP−nSL; t_d = 4000
E
Demo 3: XP−EHH; t_d = 4000
F
Demo 3: XP−nSL; t_d = 4000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S69. Power difference between unphased implementations of XP-EHH (A, C, and E) and XP-nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 2 (C and D), and Demo 3 (E and F) with n = 10 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 4000$ is the time in generations since the two populations diverged.

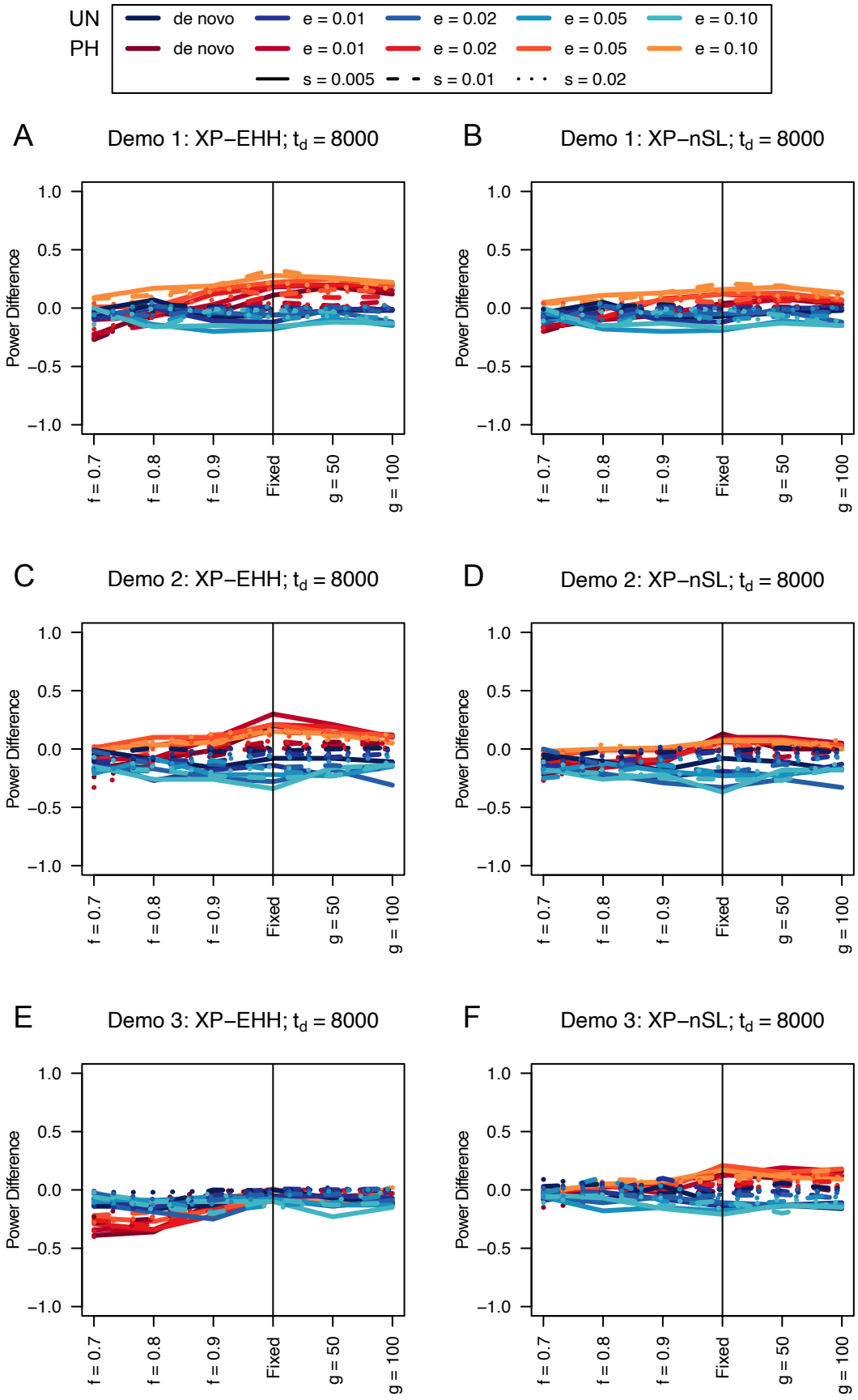

UN
PH
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
de novo
e = 0.01
e = 0.02
e = 0.05
e = 0.10
s = 0.005
s = 0.01
s = 0.02
A
Demo 1: XP−EHH; t_d = 8000
B
Demo 1: XP−nSL; t_d = 8000
C
Demo 2: XP−EHH; t_d = 8000
D
Demo 2: XP−nSL; t_d = 8000
E
Demo 3: XP−EHH; t_d = 8000
F
Demo 3: XP−nSL; t_d = 8000
Power Difference
1.0
0.5
0.0
−0.5
−1.0
f = 0.7
f = 0.8
f = 0.9
Fixed
g = 50
g = 100

Figure S70. Power difference between unphased implementations of XP-EHH (A, C, and E) and XP-nSL (B, D, and F) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 1 (A and B), Demo 2 (C and D), and Demo 3 (E and F) with n = 10 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 8000$ is the time in generations since the two populations diverged.

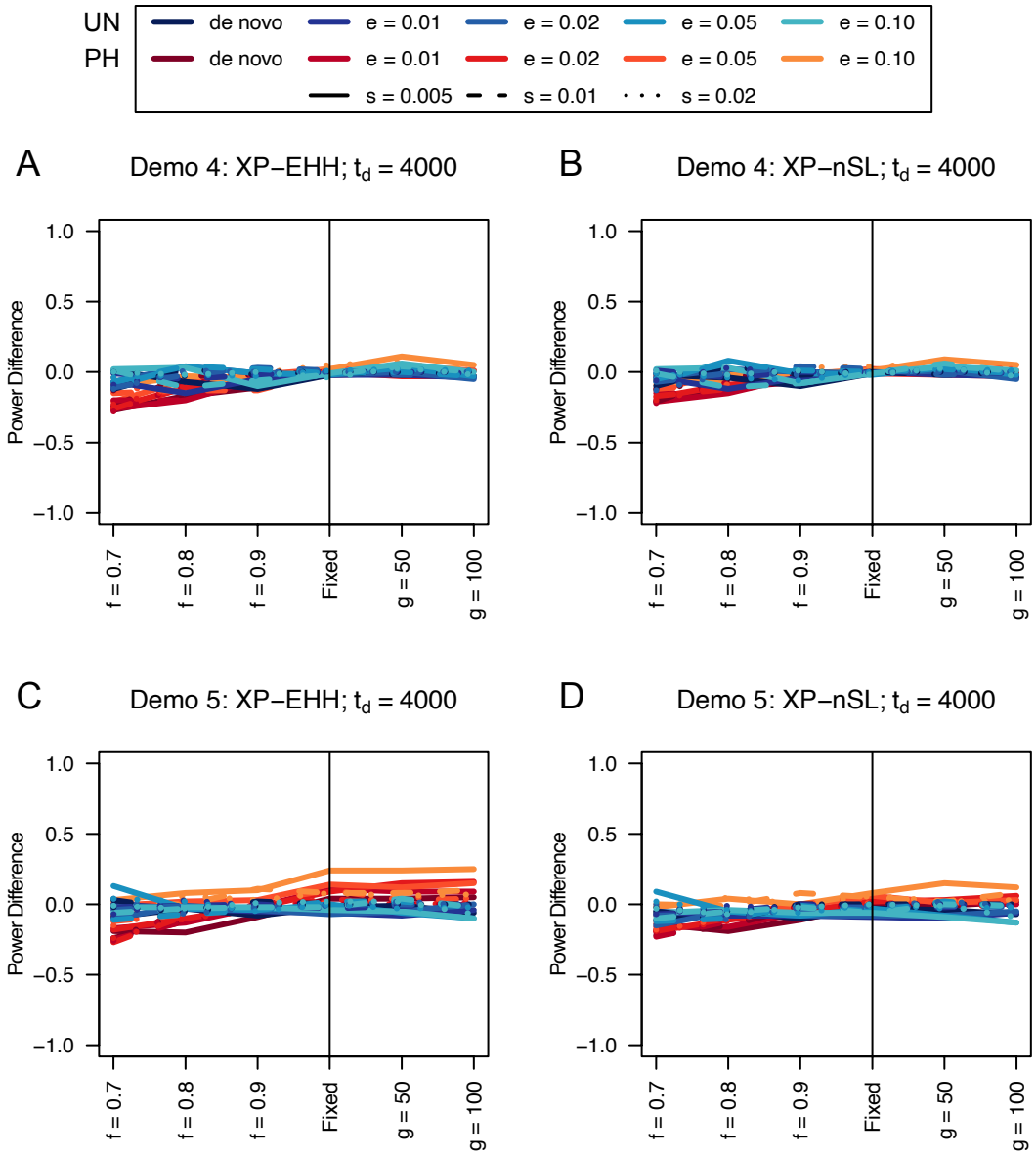


Figure S71. Power difference between unphased implementations of XP-EHH (A and C) and XP-nSL (B and D) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 4 (A and B), and Demo 5 (C and D) with n = 10 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 4000$ is the time in generations since the two populations diverged.

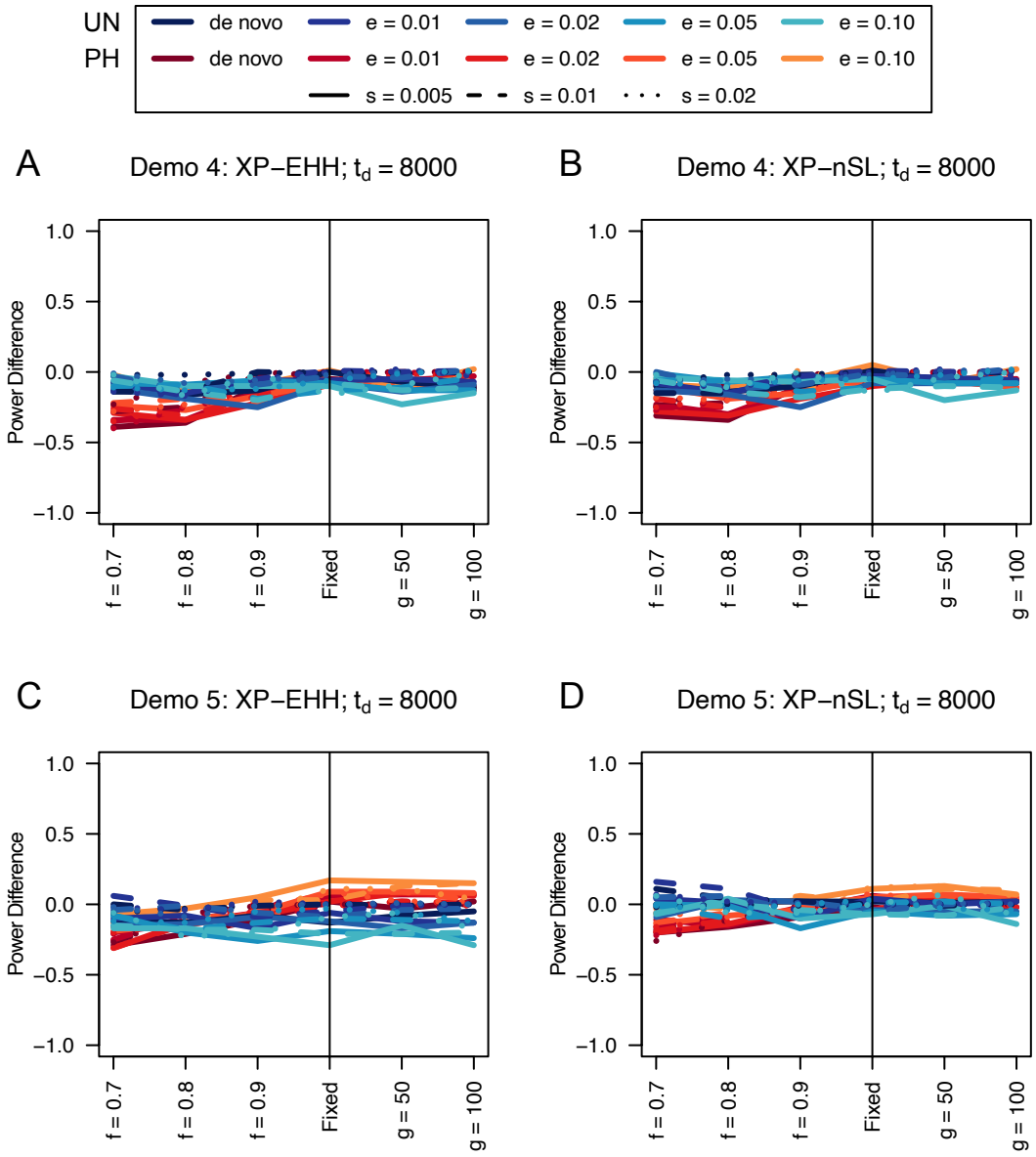


Table S72. Power difference between unphased implementations of XP-EHH (A and C) and XP-nSL (B and D) and phased implementations. Blue curves represent the power difference between the unphased and phased statistics when applied to unphased data (UN). Red curves represent the power difference between the unphased and phased statistics when applied to perfectly phased data (PH). Values greater than 0 indicate the unphased statistic had higher power. Applied to demographic histories Demo 4 (A and B), and Demo 5 (C and D) with n = 10 diploid samples from each population. s is the selection coefficient, f is the frequency of the adaptive allele at time of sampling, g is the number of generations at time of sampling since fixation, e is the frequency at which selection began, and $t_d = 8000$ is the time in generations since the two populations diverged.