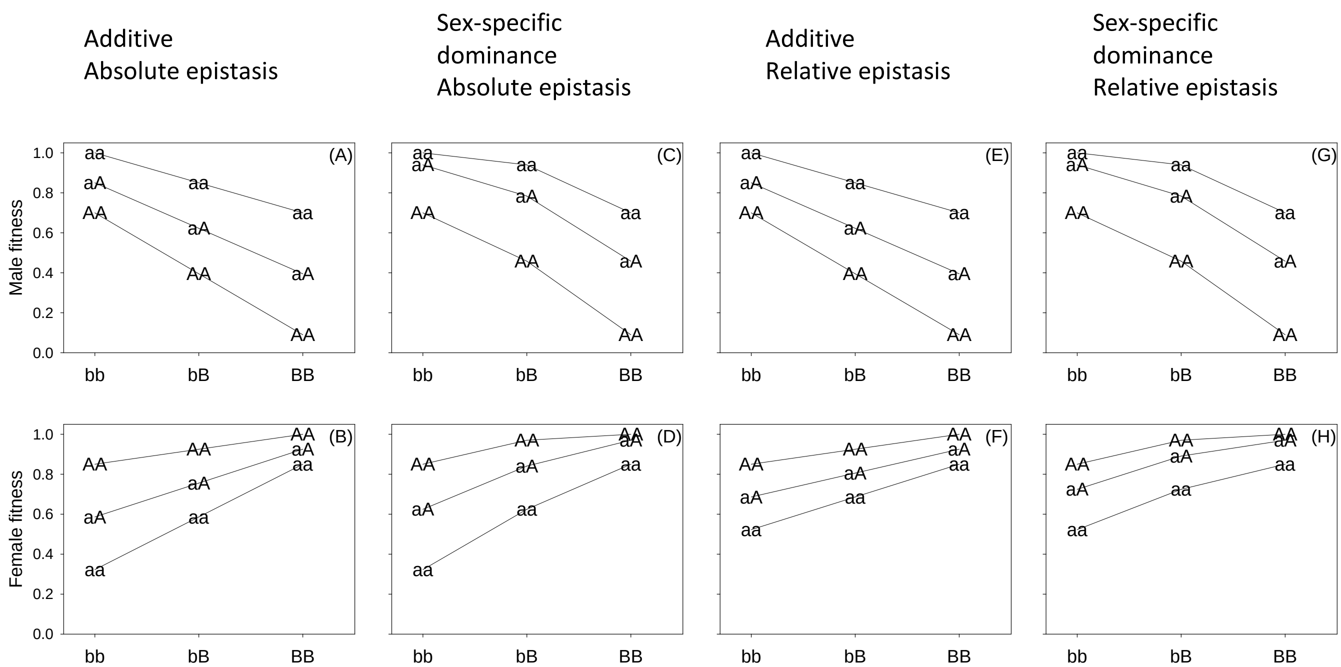
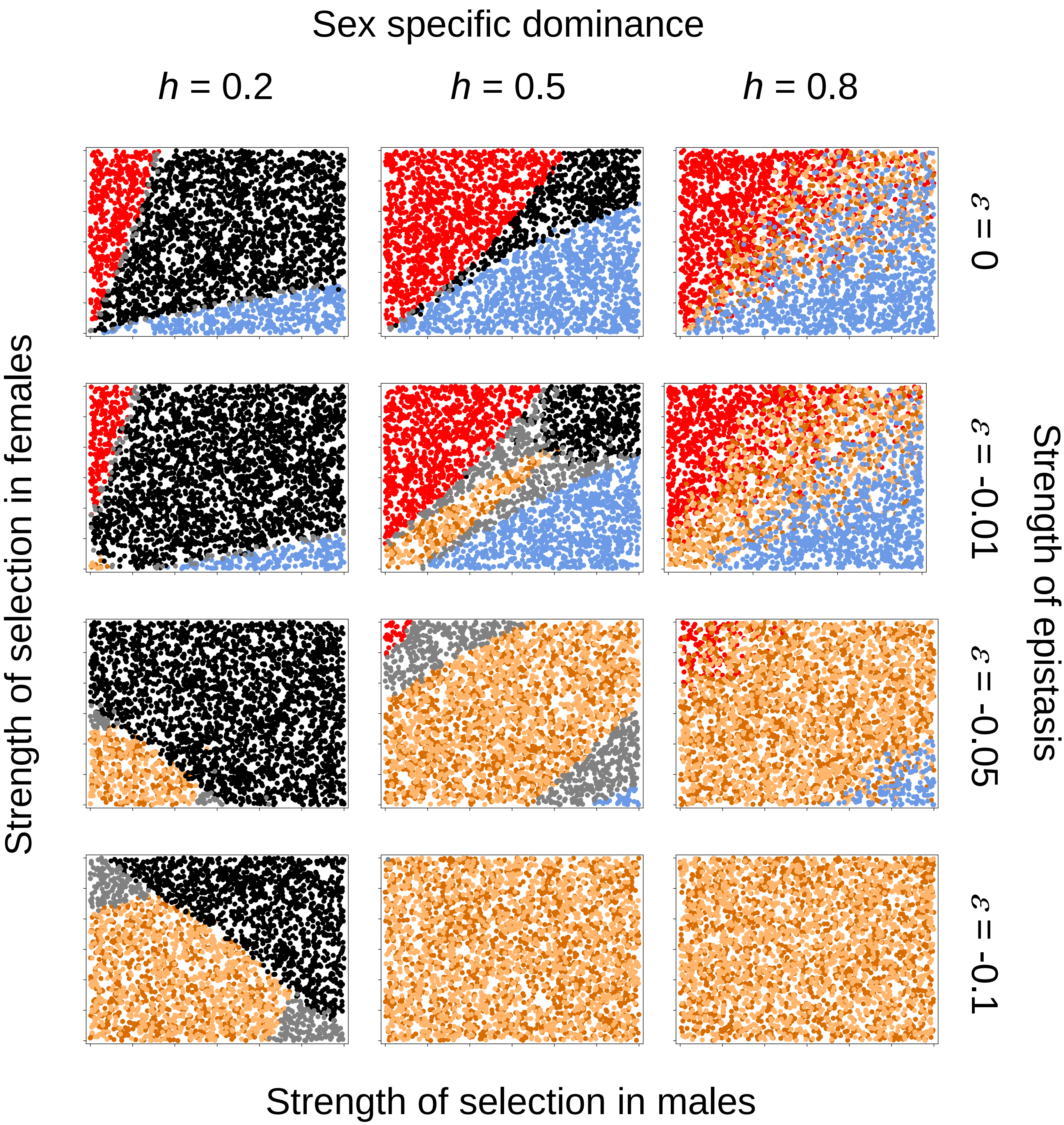
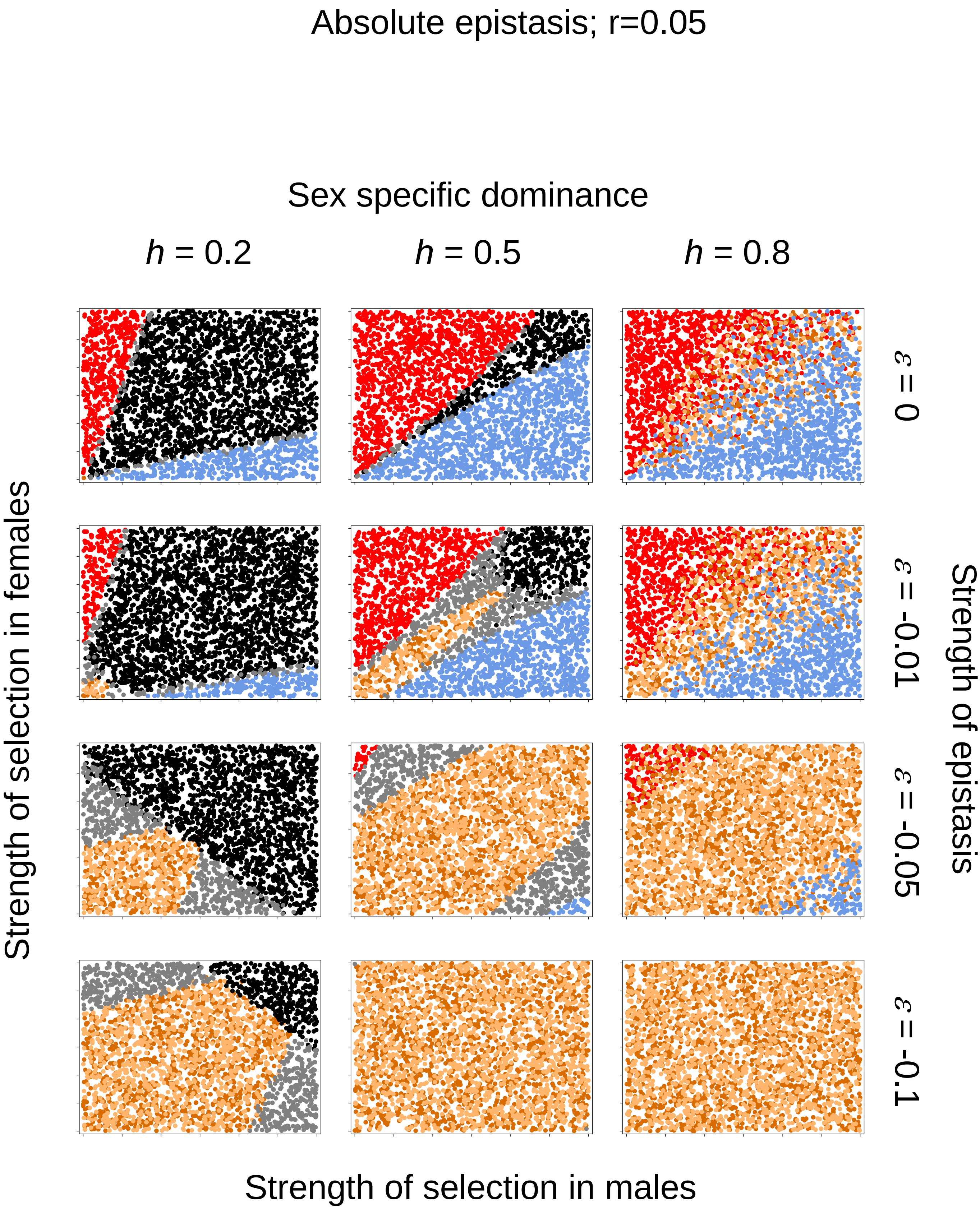


Figure S1. Visualization of sexually antagonistic absolute and relative additive × additive epistasis for fitness for two bi-allelic loci, parameterized according to the fitness sets given in Table 1. The alleles a and b are favored by selection in males and the alleles A and B are favored in females. Here, epistasis occurs because selection in one locus depends, in a sex-specific manner, upon the genotype at the other locus. For example, selection in males for allele b is less strong among aa genotypes compared to AA genotypes, as illustrated in panel (A). In general, the scenario modeled here describes situations where selection in one locus in a particular sex is relaxed when alleles benefitting that sex increase in frequency at other loci. In this figure, the top panel row depicts male fitness functions ($s_{\mathrm{Am}} = s_{\mathrm{Bm}} = 0.3$) and the bottom row female fitness functions ($s_{\mathrm{Af}} = s_{\mathrm{Bf}} = 0.15$). Note that selection in theses illustrations is stronger in males than in females. The first and third column show fitness functions when allelic effects within each locus are purely additive ($h_{\mathrm{Am}} = h_{\mathrm{Bm}} = h_{\mathrm{Af}} = h_{\mathrm{Bf}} = 0.5$) and the second and fourth column when alleles show sex-specific dominance, such that the allele that benefits a given sex is dominant in that sex ($h_{Am} = h_{Bm} = h_{Af} = h_{Bf} = 0.2$). The first two columns show absolute epistasis ($\varepsilon = -0.1$) and the third and fourth show relative epistasis ($c = -0.33$). Note that the contribution of epistasis to net selection is unrelated to the strength of additive selection under absolute epistasis (compare, e.g., panel [A] versus panel [B]) whereas it is related to the strength of selection under relative epistasis (compare, e.g., panel [E] versus panel [F]).

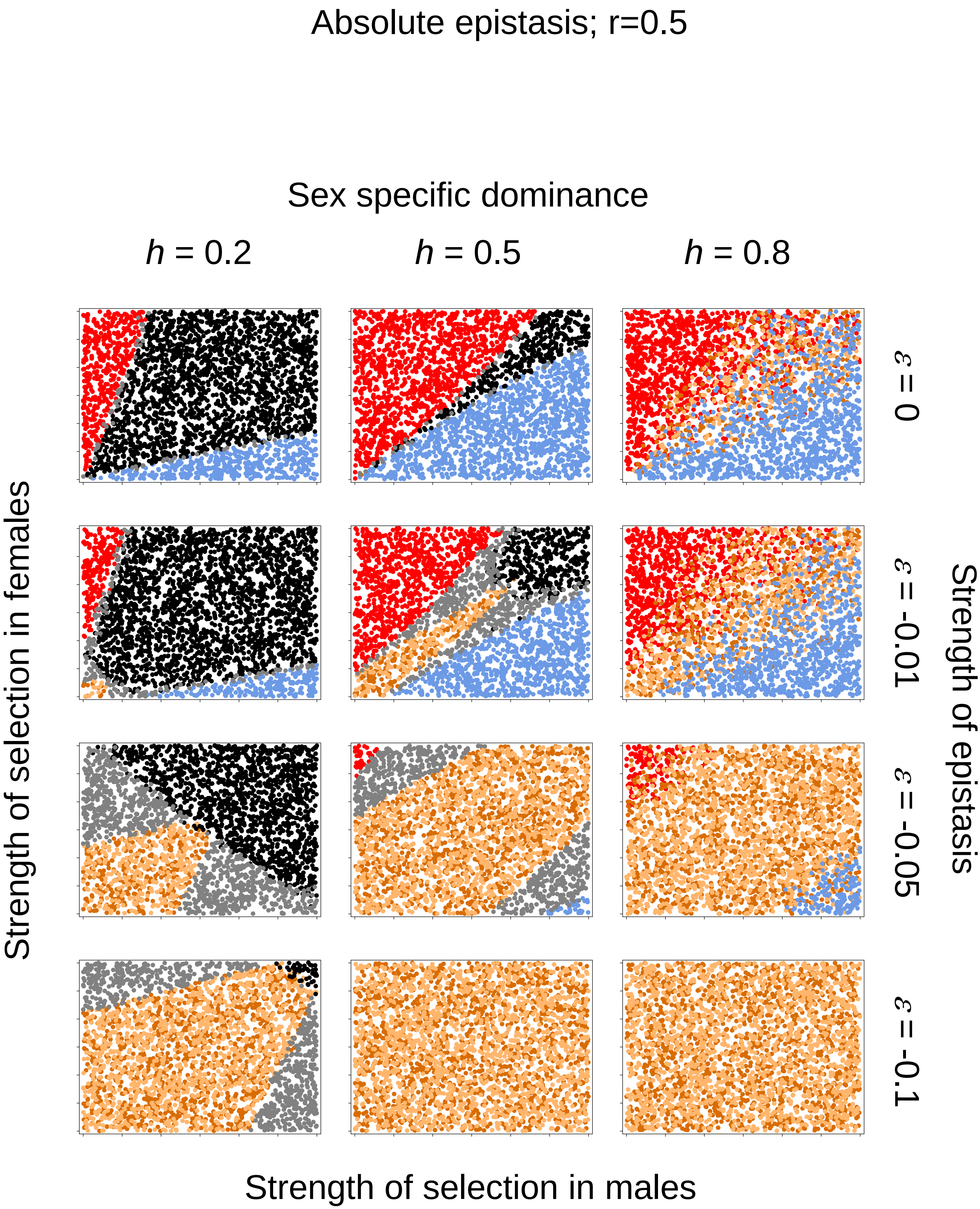
Figure S2. The effects of recombination rate on evolutionary dynamics of SA alleles (see Figure 2 for details). In the following six pages, we show the effects of epistasis and sex-specific dominance over three different rates of recombination ($r = 0$, $r = 0.05$ and $r = 0.5$) for both absolute and relative epistasis. Increasing the rate of recombination generally has minor effects on equilibrium states. The exception to this general pattern are cases where the most beneficial allele in each sex is also dominant in that sex (i.e., $h = 0.2$) and epistasis is strong; here, increased rates of recombination lead to a reduction of the zone of SA polymorphism.

Absolute epistasis; r=0



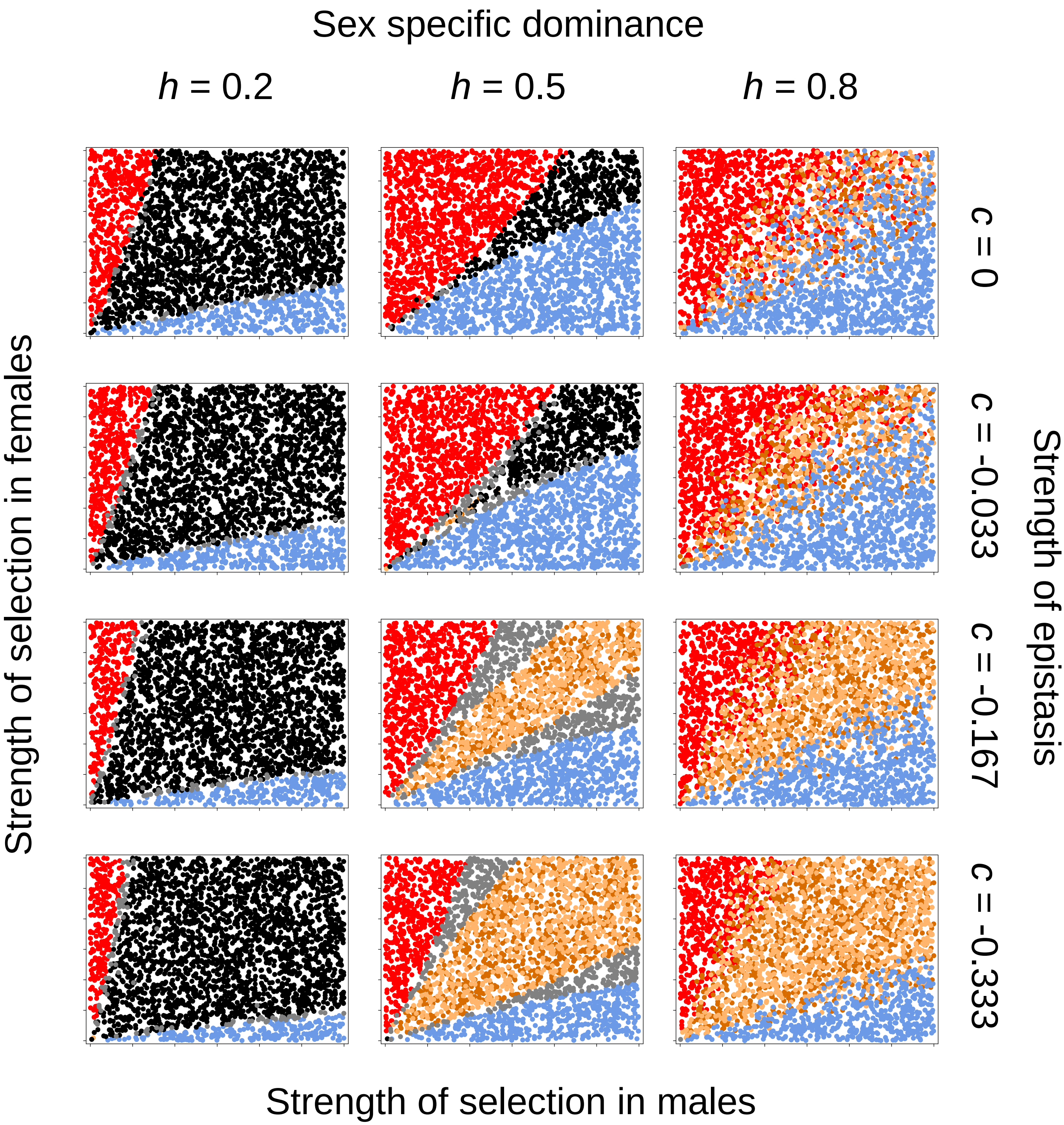


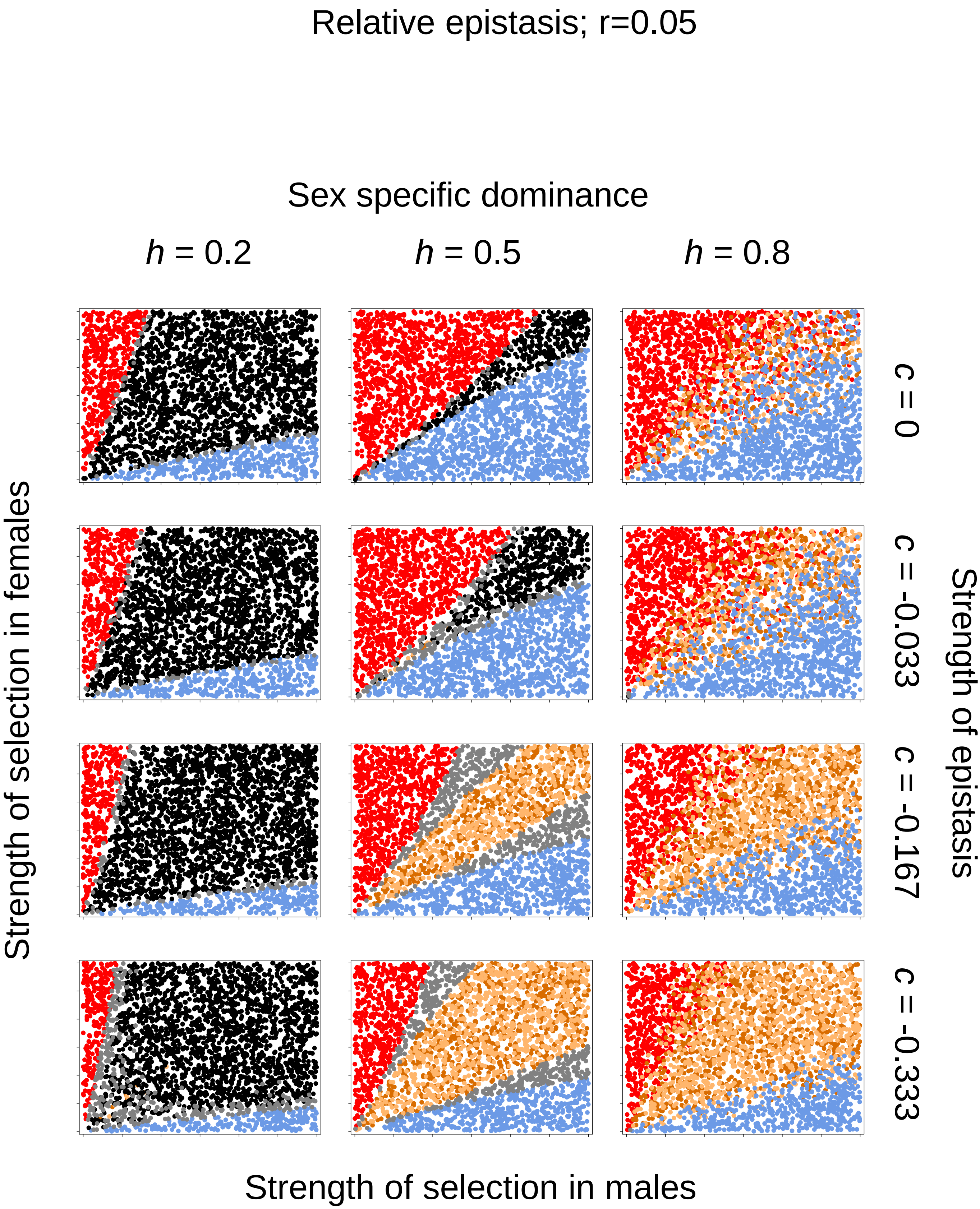
Absolute epistasis; r=0.05
Sex specific dominance
h = 0.2
h = 0.5
h = 0.8
ε = 0
ε = -0.01
ε = -0.05
ε = -0.1
Strength of epistasis
Strength of selection in females
Strength of selection in males



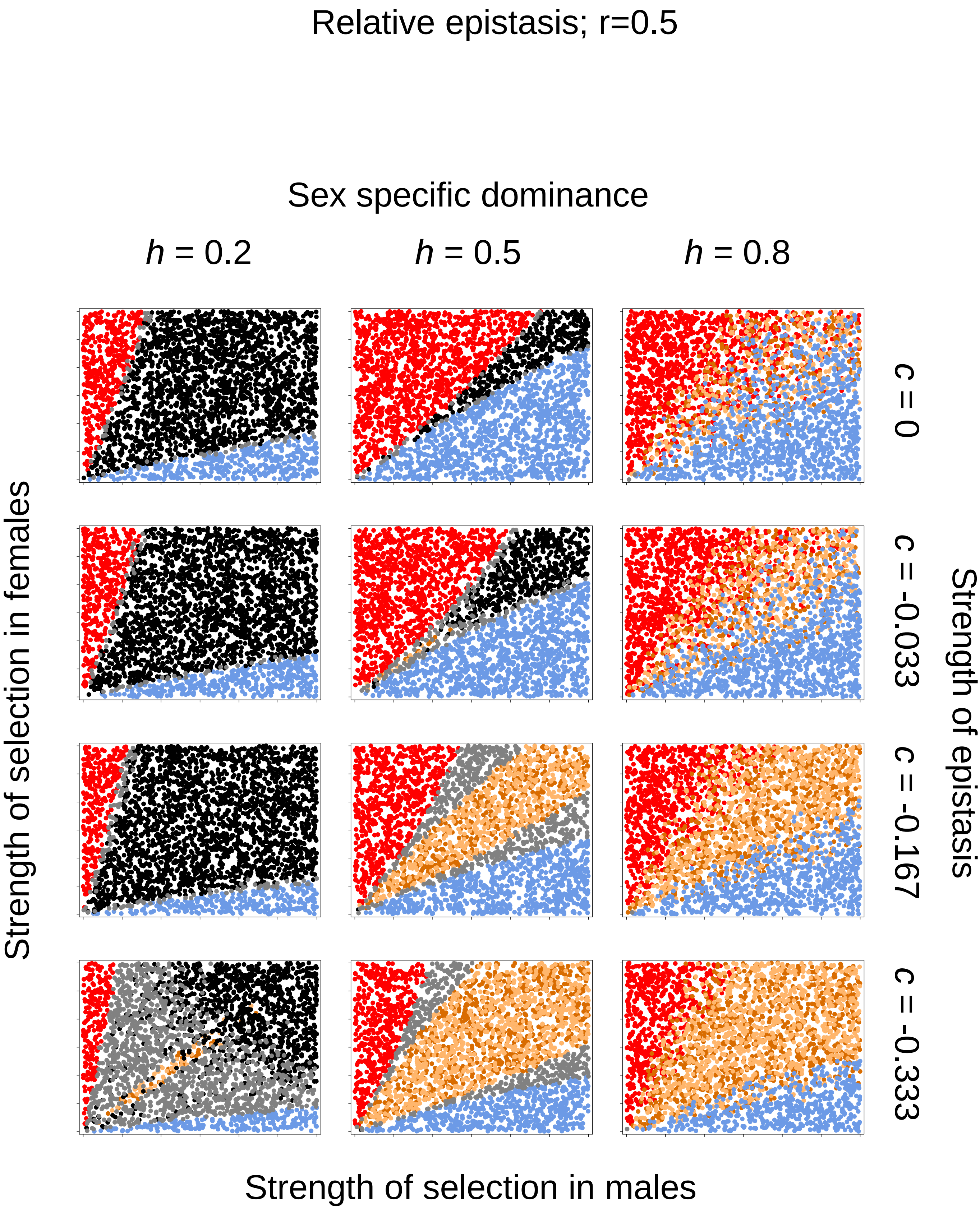
Absolute epistasis; r=0.5
Sex specific dominance
h = 0.2
h = 0.5
h = 0.8
ε = 0
ε = -0.01
ε = -0.05
ε = -0.1
Strength of epistasis
Strength of selection in females
Strength of selection in males

Relative epistasis; r=0





Relative epistasis; r=0.05
Sex specific dominance
h = 0.2
h = 0.5
h = 0.8
c = 0
c = -0.033
c = -0.167
c = -0.333
Strength of epistasis
Strength of selection in females
Strength of selection in males


Relative epistasis; r=0.5
Sex specific dominance
h = 0.2
h = 0.5
h = 0.8
c = 0
c = -0.033
c = -0.167
c = -0.333
Strength of epistasis
Strength of selection in females
Strength of selection in males