UNVIERSITY OF CAMBRIDGE
DEPARTMENT OF GENETICS

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Dear Panse,

I think you can get what you want by considering any factor with genotypefrequencies p^2, $2pq$, and q^2 and following the effects of varying the ratio p to q. Both k_3 and k_1 will have definite rates of change. I think, also, as between factors having different effects, i.e. different values of d, the rate of change under selection of the different factors will be proportional to d, if the initial gene ratio is 1 : 1, as in the F_2 from two homozygous lines.

For all factors we start at

$$p = q = \tfrac{1}{2},$$

then

$$\frac{d}{dp} k_1 = 2d$$

$$\frac{d}{dp} k_3 = -d^3,$$

and if $\frac{dp}{dt} \propto d$.

the ratio is $\frac{-s(d^4)}{2s(d^2)}$

according to the formula.

Yours sincerely,