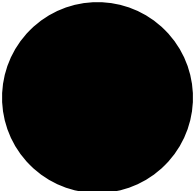
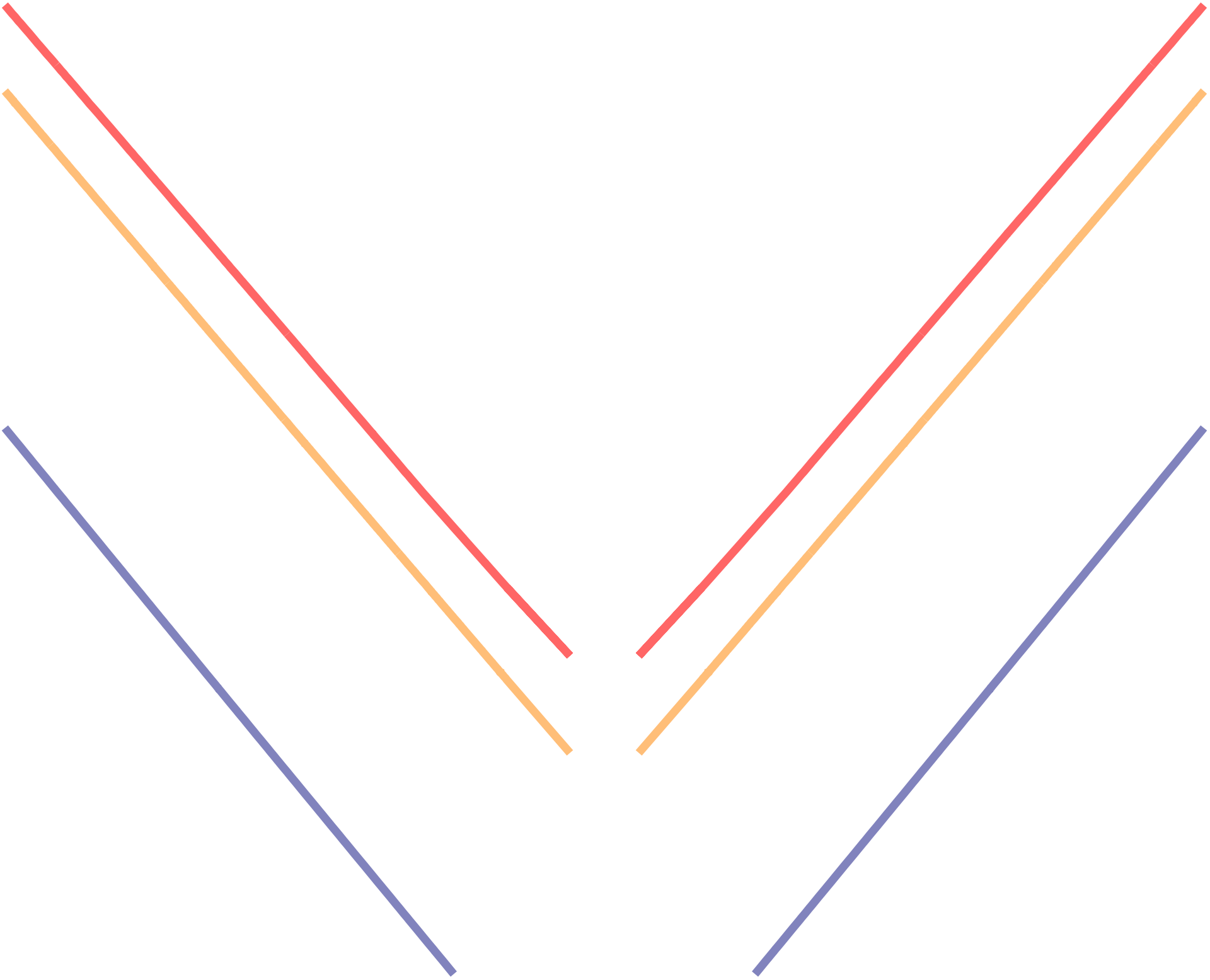


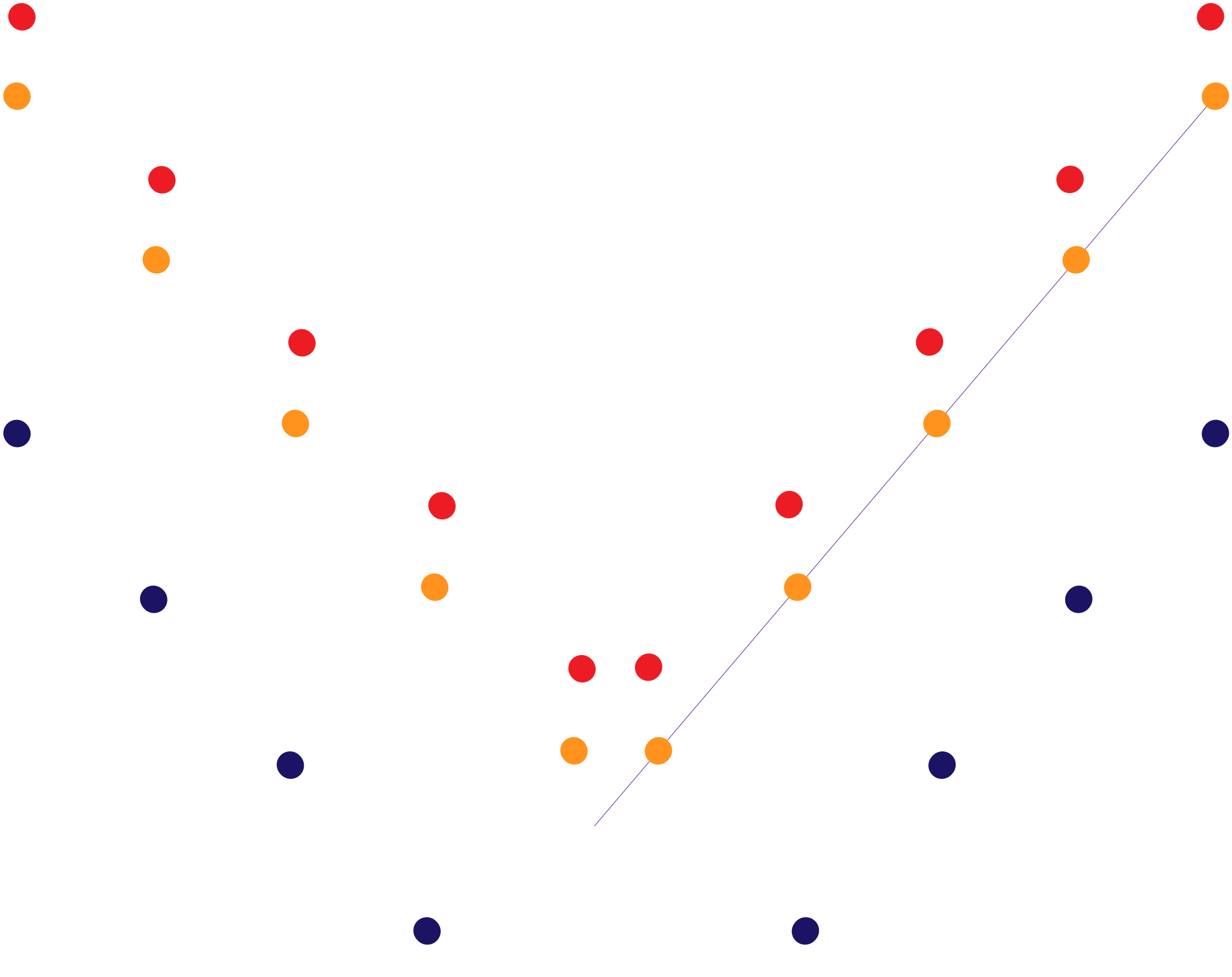
Phase-matching: inter-modal BW

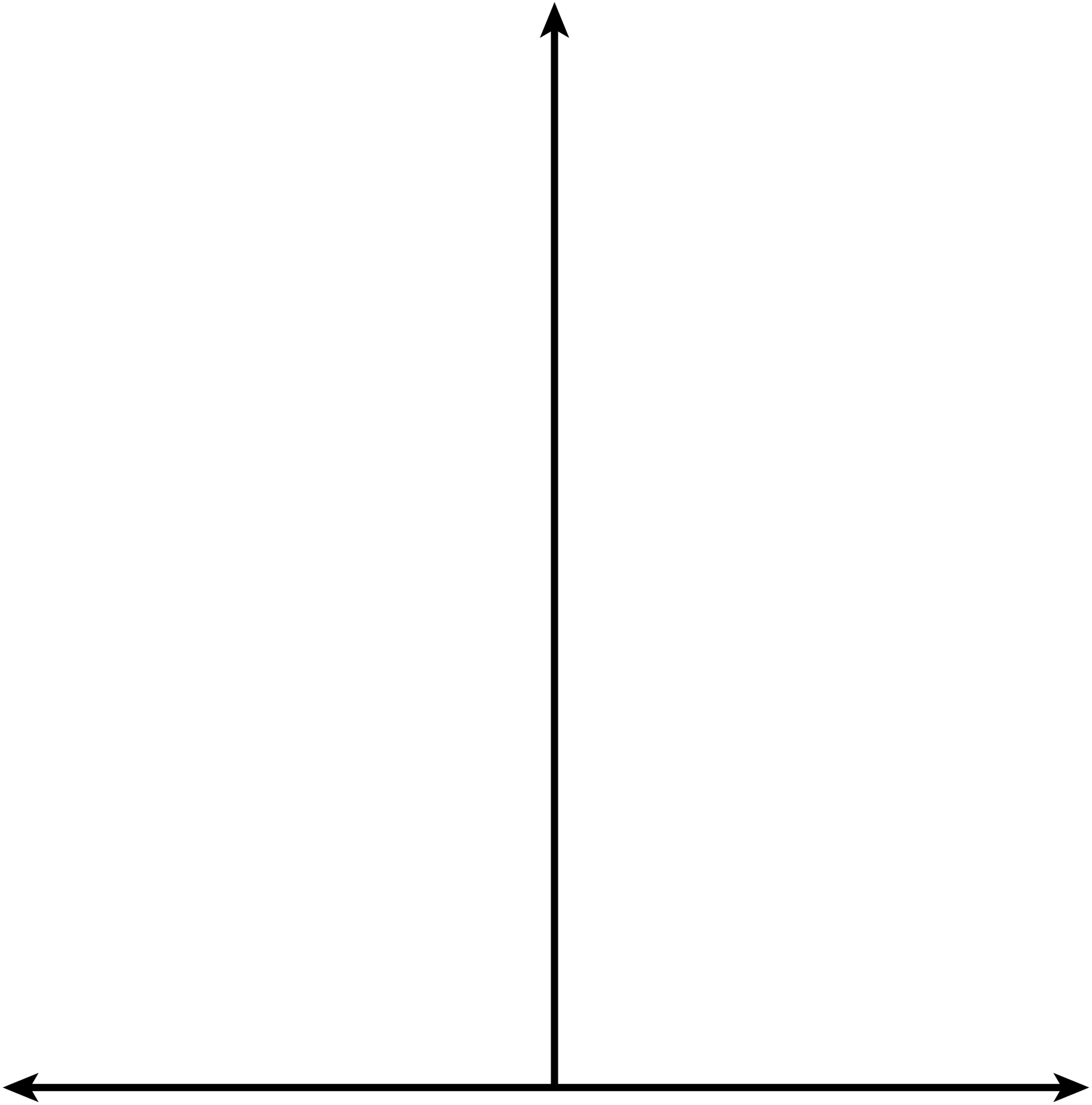
Phase-matching: inter-modal FW

24

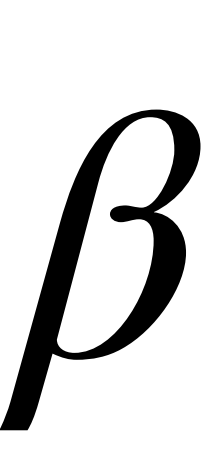
Wombat 2022, Erlangen, June 14th 2022. Gustavo Wiederhecker.







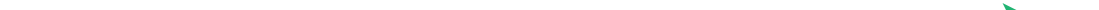
Optical wavevector,



Optical frequency,

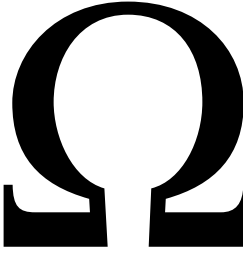
(ω_p, β_p)

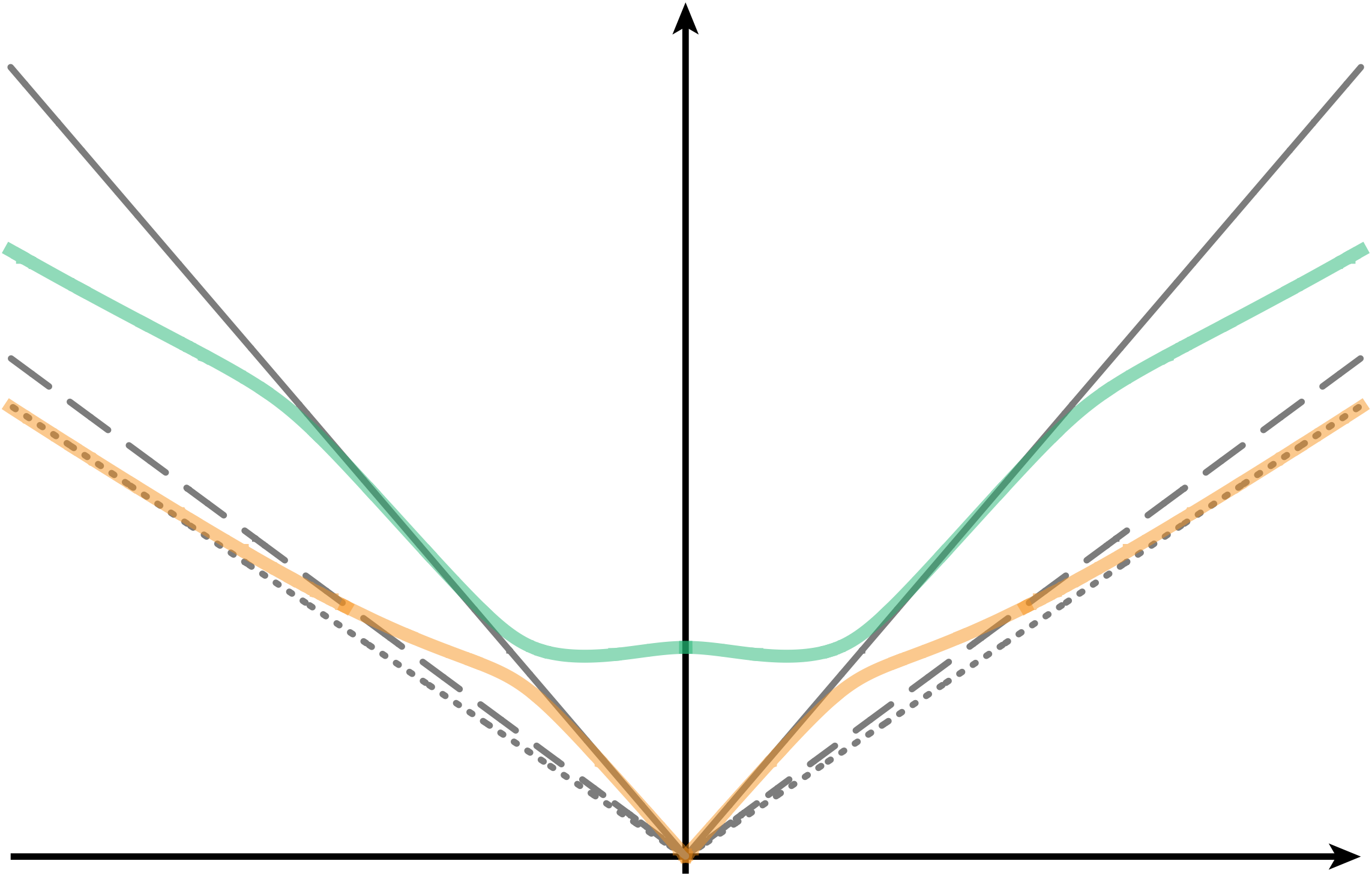
(ω_S, β_S)

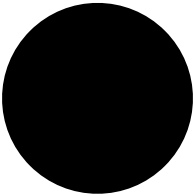


Mechanical wavevector,

Mech. frequency,



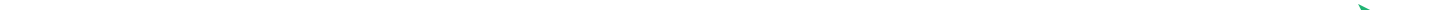


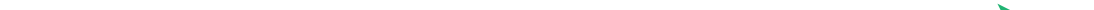


qaS

$$\Omega_S \approx \frac{v_{ac}}{c}\omega_p(n_{eff}^{(p)} + n_{eff}^{(s)})$$

$$q_S = +(|k_S| + |k_p|) \neq 2|k_p|$$





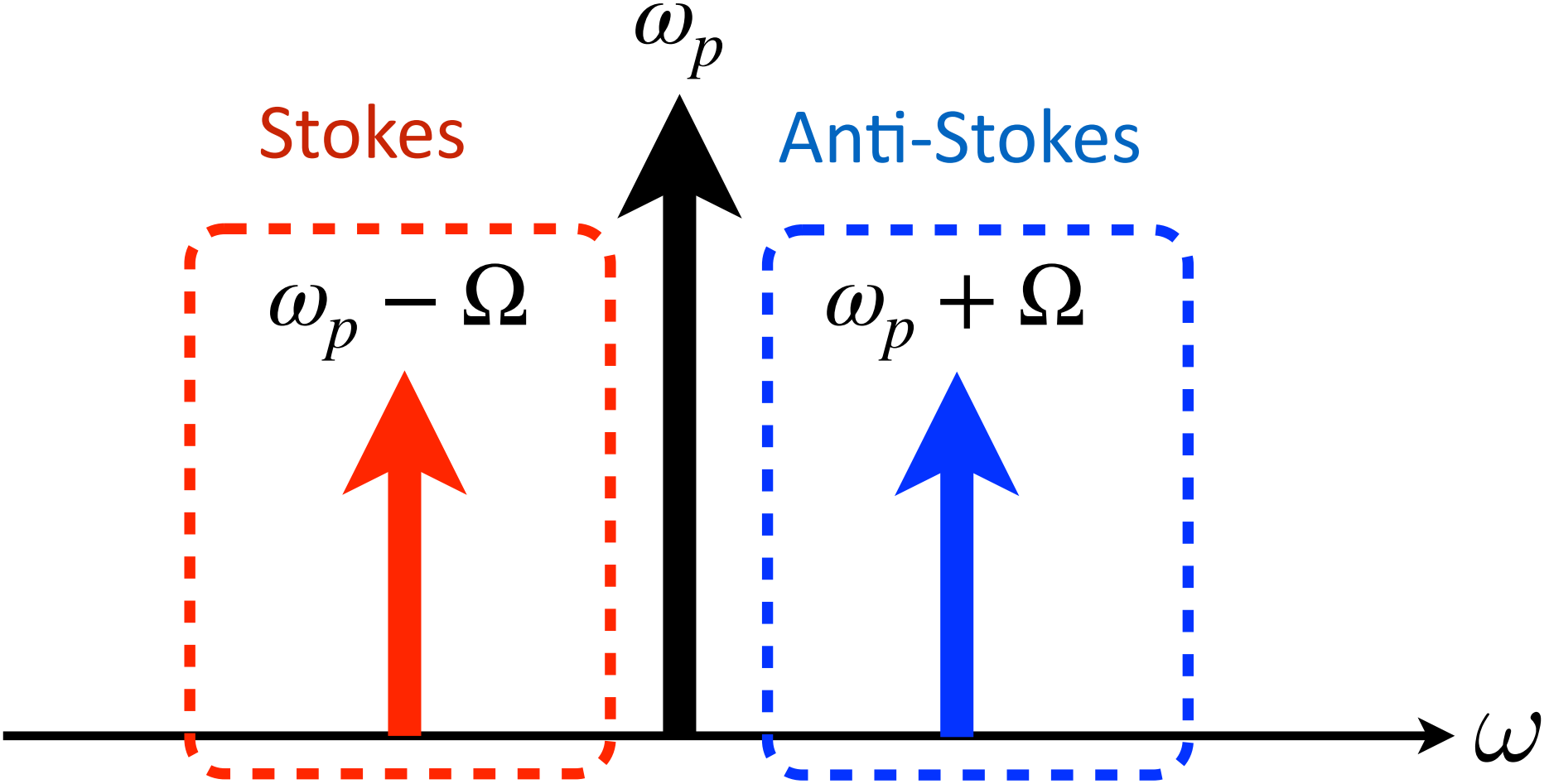
Stokes

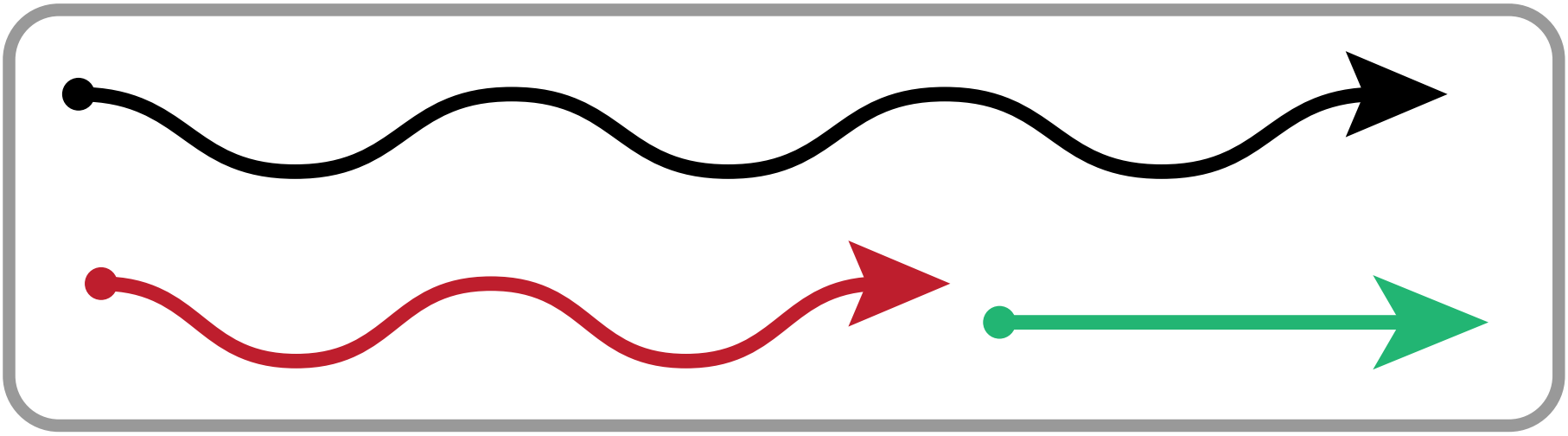
Anti-Stokes

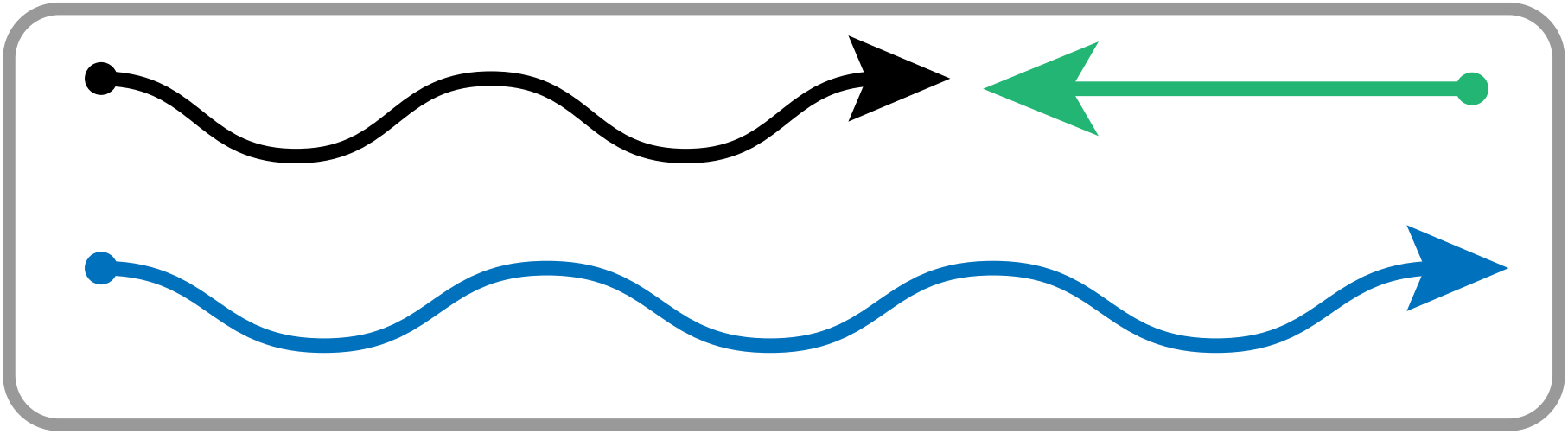
Forward Scattering (intermodal)

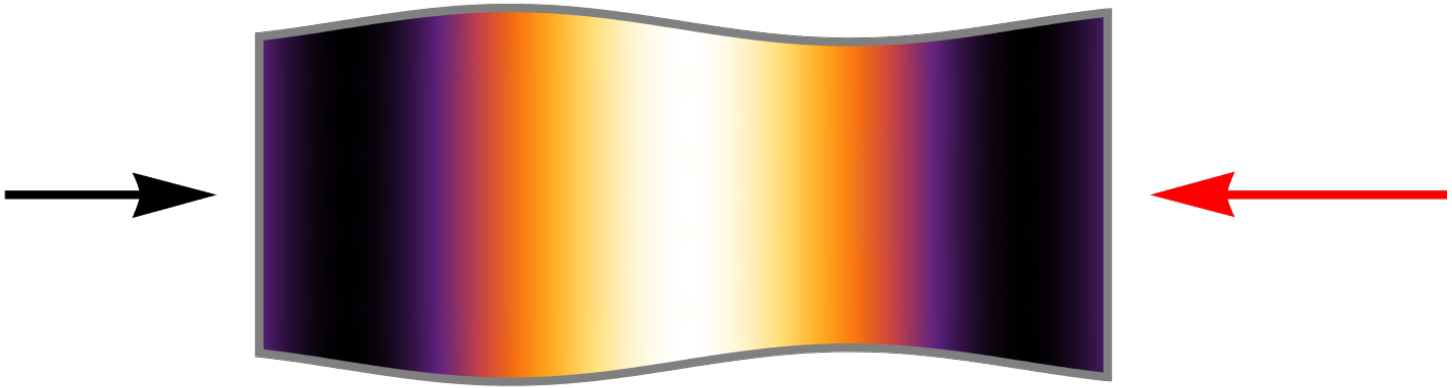
$$q_{aS} = (k_p - k_{aS})$$

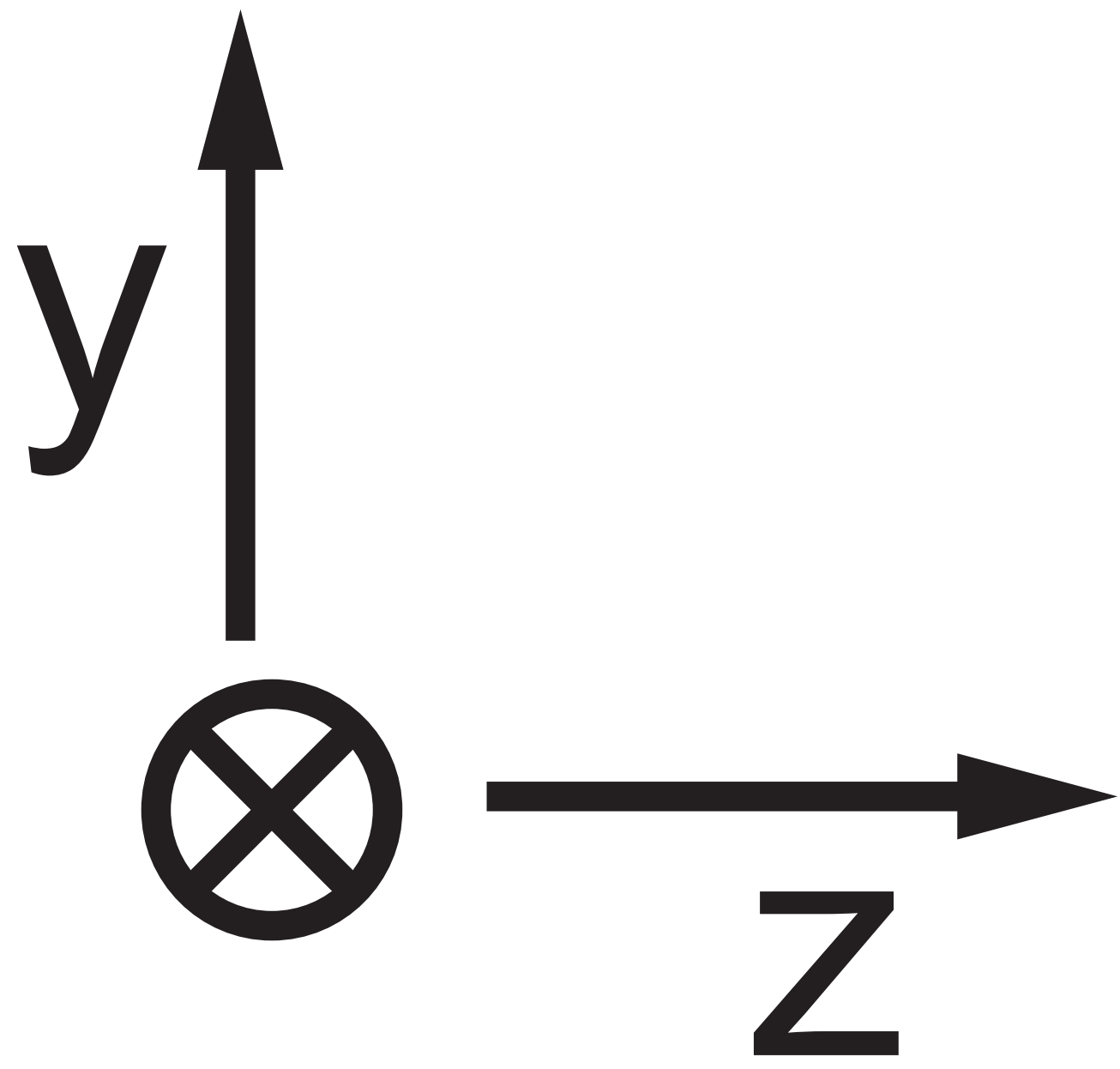
$$q_S \equiv (k_p - k_S)$$


ω_p
Stokes
Anti-Stokes
$\omega_p - \Omega$
$\omega_p + \Omega$
ω








y
z

25