$$\sum_{k=-\infty}^{\infty} (-1)^k \binom{\alpha}{k} \binom{\beta}{k} k!(a+kb)_{\lfloor k/2 \rfloor} = \frac{(-1)^{\lfloor (\alpha+\beta)/2 \rfloor} 2\cos(\pi\alpha)\cos(\pi\beta)}{(a^2-b^2)^2}$$