1

lerp_v1

a == b

$$a \oplus t \otimes (b \ominus a) = a \oplus t \otimes (b - a)(1 + \delta_1) = a \oplus t \otimes 0 = a \oplus 0 = a$$

t == 1.f

$$\begin{aligned} a \oplus t \otimes (b \ominus a) &= a \oplus 1 \otimes (b - a)(1 + \delta_1) \\ &= a \oplus (b - a)(1 + \delta_1) \\ &= (a + (b - a)(1 + \delta_1))(1 + \delta_2) \\ &= (b + \delta_1(b - a))(1 + \delta_2) \neq b \end{aligned}$$

lerp_v2

t == 1.f

$$(1.f \ominus t) \otimes a \oplus t \otimes b = (1.f \ominus 1.f) \otimes a \oplus 1.f \otimes b = 0 \otimes a \oplus b = 0 \oplus b = b$$

a == b

$$\begin{aligned} (1.f \ominus t) \otimes a \oplus t \otimes b &= (1 - t) \cdot (1 + \delta_1) \cdot a \cdot (1 + \delta_2) \oplus t \cdot b \cdot (1 + \delta_3) \\ &= ((1 - t) \cdot (1 + \delta_1) \cdot a \cdot (1 + \delta_2) + t \cdot b \cdot (1 + \delta_3)) \cdot (1 + \delta_4) \\ &= a \cdot ((1 - t) \cdot (1 + \delta_1) \cdot (1 + \delta_2) + t \cdot (1 + \delta_3)) \cdot (1 + \delta_4) \neq a \end{aligned}$$