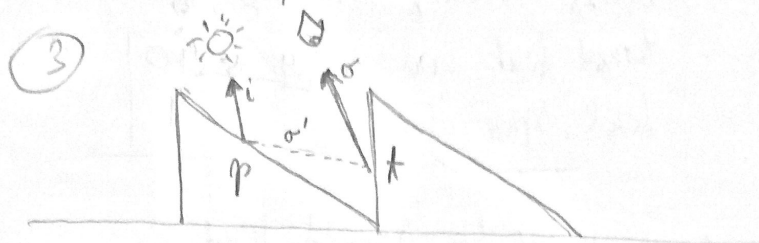


$$(2) \lambda_p(\omega_i) f_p(\omega_i, \omega'_s, \omega_p) <\omega'_s, \omega_p> (1 - g_1(\omega'_s, \omega_p)) g_1(\omega_s, \omega_t)$$

• path  $i \Rightarrow p \Rightarrow t \Rightarrow o$



$\lambda_p(\omega_i)$  - probability of incoming ray with perturbed feet

$f_p(\omega_i, \omega'_s, \omega_p)$  - evaluation of perturbed feet PDSF for incoming direction ( $\omega_i$ ) and reflected by tangent feet direction ( $\omega'_s$ ) in local space of  $\omega_p$

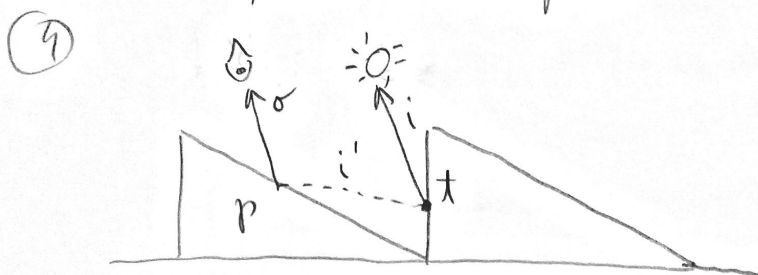
$<\omega'_s, \omega_p>$  - cosine weight for perturbed feet

$(1 - g_1(\omega'_s, \omega_p))$  - shadowing of reflected <sup>output</sup> directions by perturbed feet

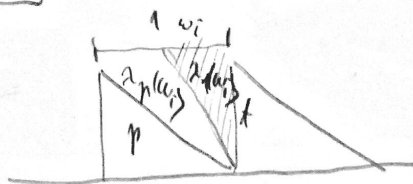
$g_1(\omega_s, \omega_t)$  - shadowing of outgoing direction by tangent feet

$$(3) \lambda_t(\omega_i) f_p(\omega_i, \omega_s, \omega_p) <\omega_s, \omega_p> g_1(\omega_s, \omega_p) (1 - g_1(\omega'_i, \omega_t))$$

• path  $i \Rightarrow t \Rightarrow p \Rightarrow o$



$\lambda_t(\omega_i)$  - probability of intersection of incoming ray and tangent feet



$$\lambda_t(\omega_i) = \frac{a_t(\omega_i)}{a_p(\omega_i) + a_t(\omega_i)}$$