$$\Theta(\mathbf{s},\mathbf{v},D,\epsilon) \equiv \frac{-\mathbf{s}\cdot\mathbf{v}+\epsilon\sqrt{\Delta(\mathbf{s},\mathbf{v},D)}}{\mathbf{v}^2},$$

$$\Delta(\mathbf{s},\mathbf{v},D) \equiv D^2\mathbf{v}^2-(\mathbf{s}\cdot\mathbf{v}^{\perp})^2.$$