The Differentiation of Divided Functions  
The derivative of a function f(x) / g(x)  
(f(x) / g(x))^{\prime}=\left\{f^{\prime}(x) g(x)-f(x) g^{\prime}(x)\right\} / g^{2}(x)  
(f(x) / g(x))^{\prime}=\operatorname{limit}\_{\Delta x \rightarrow 0} \frac{f(x+\Delta x) / g(x+\Delta x)-f(x) / g(x)}{\Delta x}  
=\operatorname{limit}\_{\Delta x \rightarrow 0} \frac{f(x+\Delta x) g(x)-f(x)^{\*} g(x+\Delta x)-f(x)^{\*} g(x)+f(x)^{\*} g(x)}{\Delta x g(x) g(x+\Delta x)}  
\operatorname{limit}\_{\Delta x \rightarrow 0} \frac{\left.\left.\{f(x+\Delta x)-f(x)\}^{\*} g(x+\Delta x)+f(x)\right)^{\*} g(x+\Delta x)-g(x)\right\}}{\Delta x g(x) g(x+\Delta x)}=\frac{f(x) g(x)-f(x) g^{\prime}(x)}{g^{2}(x)}