

$$N = \underbrace{13}_{s_1} . \underbrace{213}_{s_2} \underbrace{435}_{s_3} \underline{435} \underline{435} \dots$$

$$\left\{ \begin{array}{l} u_1 = \text{int}(s_1) \quad u_2 = \text{int}(s_2) \quad u_3 = \text{int}(s_3) \\ i_2 = \text{len}(s_2) \quad i_3 = \text{len}(s_3) \end{array} \right.$$

$$N = u_1 + \frac{u_2}{10^{i_2}} + \frac{1}{10^{i_2}} \underbrace{(0.435 + 0.000435 + \dots)}_{S \text{ (somme géom.)}}$$

$$S = 435(10^{-3} + 10^{-6} + \dots)$$

on a formule de sommation $1 + x + x^2 + \dots = \frac{1}{1-x}$

$$N = u_1 + \frac{u_2}{10^{i_2}} + \frac{u_3}{10^{i_2+i_3}} \left(1 + \frac{1}{10^{i_3}} + \left(\frac{1}{10^{i_3}} \right)^2 + \dots \right)$$

$$N = u_1 + \frac{u_2}{10^{i_2}} + \frac{u_3}{10^{i_2+i_3}} \frac{1}{1 - \frac{1}{10^{i_3}}} = u_1 + \frac{u_2}{10^{i_2}} + \frac{u_3}{10^{i_2}} \frac{1}{10^{i_3} - 1}$$

exo_ratio.pdf