1127-11-261 **Mojtaba Moniri*** (m-moniri@wiu.edu). *Approximate closed formulas for (the g-inverse of) binary lengths of a Wolfram sequence.*

For a sequence c of approximate multiplication by $\frac{3}{2}$, namely $x_{n+1} = \lfloor \frac{3}{2} x_n \rfloor$, with $x_1 = 2$, the binary lengths s of the terms of c and the generalized inverse $r(m) = \min\{k | s(k) \geq m\}$ of s are considered. We prove that if c is never a power of 2 beyond the third position, then r is Sturmian there $\lfloor \frac{m}{\log_2(\frac{3}{2})} + \gamma \rfloor - 1$ with its inhomogeneity γ expressible via an Odlyzko-Wilf constant. In any case we show that on a set of n's with density between 0.9027 to 0.9028, $r_m = \lfloor \frac{m}{\log_2(\frac{3}{2})} \rfloor - 1$ and on an exception set of density between 0.0972 to 0.0973, $r_m = \lfloor \frac{m}{\log_2(\frac{3}{2})} \rfloor$. For the sequence s itself, we show that on a set of n's with density between 0.8869 to 0.8870, $s_n = \lfloor n \log_2(\frac{3}{2}) \rfloor + 1$ and on an exception set of density between 0.1130 to 0.1131, $s_n = \lfloor n \log_2(\frac{3}{2}) \rfloor + 2$. A similar conditional closed formula is obtained for s in the style of the one for the sequence r. (Received February 05, 2017)