1056-03-649 **Julia F. Knight***, knight.1@nd.edu, and **Karen Lange**, klange1@nd.edu. *Generalized power series and real closed fields: Part II.*

Mourgues and Ressayre showed that every real closed field has an integer part. Their construction involves mapping the given real closed field R isomorphically onto a truncation closed sub-field of the field $k\langle\langle G\rangle\rangle$, where G is the natural value group of R and k is the residue field. We refer to the image of $r \in R$ as its *development*. If G has cardinality κ, then the developments may have arbitrary ordinal length less than κ^+. We consider the case where R is countable, and we list the elements of a transcendence base for R over k—$r_1, r_2, \ldots$. In terms of this list, the Mourgues and Ressayre construction becomes canonical. Let R_n be the real closure of $R_n(r_1, \ldots, r_n)$. By a result of Shepherdson, the elements of R_1 have developments of length at most ω. We show that elements of R_n have developments of length at most $\omega^{\omega^{(n-1)}}$. Thus, the elements of R have developments of length less than $\omega^{\omega^{\omega}}$. These bounds are sharp. Letting G be generated by a single infinitesimal, we produce a sequence of elements $r_1, r_2, \ldots$ such that for each $n \geq 1$, R_n contains an element whose development has length $\omega^{\omega^{(n-1)}}$. (Received September 15, 2009)