1154-68-201 **Ian Kaye** and **Narad Rampersad*** (n.rampersad@uwinnipeg.ca). *The abelian complexity of infinite words and the Frobenius problem.*

The classical Diophantine problem of Frobenius is the following: Given a pair of relatively prime positive integers a and b, what is the largest positive integer not representable as a non-negative linear combination of a and b? We study a variation on this problem due to Dekking. Consider an infinite word $\mathbf{x}$ over an alphabet $\{0, 1, \ldots, k-1\}$ and a semigroup homomorphism $S : \{0, 1, \ldots, k-1\}^* \to \mathbb{N}$. Let $\mathcal{L}_{\mathbf{x}}$ denote the set of factors of $\mathbf{x}$. What conditions on S and the abelian complexity of $\mathbf{x}$ guarantee that $S(\mathcal{L}_{\mathbf{x}})$ contains all but finitely many elements of $\mathbb{N}$? We examine this question for some specific infinite words $\mathbf{x}$ having different abelian complexity functions. We say that $\mathbf{x}$ has the *Frobenius property* if $S(\mathcal{L}_{\mathbf{x}})$ contains all but finitely many elements of $\mathbb{N}$ for every map S such that $gcd(S(0), S(1), \ldots, S(k-1)) = 1$. Dekking showed that no Sturmian word has the Frobenius property. We show that the ordinary paperfolding word does not have the Frobenius property and we give an example of an infinite binary word with non-maximal abelian complexity that does have the Frobenius property. (Received August 22, 2019)