Errata for

"Galois Theory of Difference Equations"
M. van der Put and M.F. Singer

Page 6 - 7: Replace **Definition 1.5** with the following

> *Let k be a difference field and $\phi Y = AY$ be a first order system with $A \in \mathrm{GL}_n(k)$. We call a k-algebra R a* Picard-Vessiot ring *for $\phi Y = AY$ if:*
>
> 1. *An isomorphism of R, also denoted by ϕ, which extends ϕ on k is given.*
> 2. *R is a simple difference ring.*
> 3. *There exists a fundamental matrix X for $\phi Y = AY$ having entries in R such that $R = k[X, (det X)^{-1}]$*

The first two conditions of this definition are the same as those of **Definition 1.5**. This is the definition that is implicitly used throughout the book and no proofs need be changed. Although this new definition implies the old one, it is not clear if these are equivalent.

Page 47: 1) *Lines 4-5:* Replace *whose algebraic closure $\bar{k}$ also lies in $\mathcal{S}$* with *whose algebraic closure $\bar{k}$ also lies in $\mathcal{S}$ and is invariant under ϕ_0*

2) In the first sentence of **Proposition 4.1**, repalce *assume that the algebraic closure $\bar{k}$ of k also lies in $\mathcal{S}$* with *assume that an algebraic closure $\bar{k}$ of k also lies in $\mathcal{S}$ and is left invariant by ϕ_0*

Page 146: In entry [19] in the bibliography, replace *Cohen* with *Cohn.*