ERRATA OF MY PAPERS

by

Léo Poyeton

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1. PhD Thesis

Lemma 2.2.26. — *There is no reason for the existence of such a power series $Q(T)$, because the ring $\mathcal{O}_E[\![w]\!]$ is not stable by φ_d a priori. However, we can replace $\mathcal{O}_E[\![w]\!]$ by another ring $\mathcal{O}_E[\![w']\!]$ which contains the former and for which this condition holds. This is done in details in* [**Poy19**].

2. Formal groups and lifts of the field of norms

Lemma 7.7. — *The proof given to find the positive constant A does not work if $p|k_0$. The existence of such a constant however directly follows from the fact that the extension E_∞/E is strictly APF.*

3. (φ,τ)-modules différentiels et représentations potentiellement semi-stables

In the begininng of §2.2, I claim that the operator ∇ that Berger defines on the cyclotomic Robba ring corresponds to $\frac{d}{du}$ but it actually is $(1+u)t\frac{d}{du}$, where $t=\log(1+u)$.

Remark 3.4. — *One should invert λ everywhere for the result to hold.*

4. Families of Galois representations and (φ,τ)-modules

Theorem 5.3. — *Unfortunately we can't apply theorem 3.7 directly (at the end of the proof) because the space is not noetherian. However, we can apply lemma 7.1.1 of* [**KL15**] *to show that the (m_i) are indeed a basis of M.*

Theorem 7.6. — *The statements are wrong because there are two mistakes in the proof. On line 3 of the proof, there is a $(p-1)$ power of $[\varepsilon]$ where it should just be $[\varepsilon]$, and then one should take the $1/(p-1)$ power instead of its opposite. If we fix those mistakes, the statement of the theorem should be: The (φ,τ)-module corresponding to $\delta=\mu_\beta\cdot\omega^r\cdot\langle\chi_{\mathrm{cycl}}\rangle^s$ admits a basis e in which $\varphi(e)=\beta\cdot[\widetilde{p}]^{-r}\cdot(\frac{[\widetilde{p}]}{[\widetilde{p}]-p})^s\cdot e$ and $\tau(e)=[\varepsilon]^{\frac{r-s}{1-p}}\prod_{n=0}^{+\infty}\varphi^n(1+\alpha[\widetilde{p}])^{-s}\cdot e$.*

5. F-analytic B-pairs

Proposition 3.4. — *There is something missing in the last statement of the proposition, namely that we assume that $\mathbf{D}$ is F-analytic.*

References

[Ber16] Laurent Berger, *Multivariable (φ,Γ)-modules and locally analytic vectors*, Duke Math. J. **165** (2016), no. 18, 3567–3595.

[KL15] Kiran S. Kedlaya and Ruochuan Liu, *Relative p-adic hodge theory: foundations.*, Astérisque **371** (2015), 1 – 239.

[Poy19] Léo Poyeton, *Formal groups and lifts of the field of norms*, arXiv preprint arXiv:1903.11106 (2019).

May 16, 2025

Léo Poyeton