

ADDENDA AND CORRIGENDA

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- Addendum to [1].

- In the proof of Proposition 5.2 of [1], the correct reference is to Theorem 5.6 of [18] (instead of Theorem 5.5 of [18]).

- Corrigenda to [2].

- In Proposition 2.6, the polynomials F_i are in $n + 2$ variables (instead of in $n + 1$ variables).
- In Proposition 4.3.3, the condition “irreducible” on $h(f)$ should be replaced by the condition “absolutely irreducible”. Indeed, this is used in the proof when saying that there are at most $d(d - 1)$ lines L in the direction of v (for the directional derivative not to vanish identically). At every use of this Proposition 4.3.3 in the paper, this extra condition of absolutely irreducibility for $h(f)$ is already satisfied. The same correction should be made to Proposition 7.1 of [Marcelo Paredes, Román Sasyk, *Uniform bounds for the number of rational points on varieties over global fields*, ANT, 2022].
- In Proposition 4.3.4, the upper bound $cd^{14}B$ for $N_{\text{aff}}(f, B)$ should be $cd^{18}B$. Indeed, in the proof of Proposition 4.3.4, δ can be at most d times the expression from (4.3.1) (this factor d is forgotten in the reasoning). The exponent 18 has been picked up correctly in Proposition 7.3 of [Marcelo Paredes, Román Sasyk, *Uniform bounds for the number of rational points on varieties over global fields*, ANT, 2022]. This correction is now obsolete in view of the improvements made in [6].
- In Lemma 4.3.7, the degree should be $(n+1)d(d^2 - 1)$ instead of $(n+1)(d^2 - 1)$. The corresponding correction should be made in Lemma 7.5 of [Marcelo Paredes, Román Sasyk, *Uniform bounds for the number of rational points on varieties over global fields*, ANT, 2022].
- Remark 4.3.8 should be changed according to the corrected versions of Proposition 4.3.4 and Lemma 4.3.7. This correction is now obsolete in view of the improvements made in [6].

- Addendum to [3] and [8].

- In Remark 2.1.16 of [5], an additional reduction argument is explained that was used but not made explicit in [3] and [8].
- Corrigendum to [4].
 - In [4], there are two alternative definitions given for cones with multiplicities and it is claimed that they are equivalent, namely the equality of $CM_0^\Lambda(X)$ and $SC_0^\Lambda(X)$ in Section 5.4 of [4]. In fact, they are not equal in general, and, only $CM_0^\Lambda(X)$ should be used throughout [4] (and not $SC_0^\Lambda(X)$), as noted in Section 6.1 of [19]. Even with this corrected definition, the final part of Theorem 3.6.2 of [4] remains unproved as far as we know, and Proposition 2.4.2 of [4] is wrong as stated, as noted in Section 6.1 of [19]. We thank Arthur Forey for pointing this out to us.
- Corrigenda to [7].
 - In Lemma 5.1.3, Proposition 5.1.4 and Theorems B and 5.2.2 of [7], for L of characteristic zero, the dependence of the bounds on the degree ν of L over $\mathbb{Q}_p$ is forgotten. For Lemma 5.1.3 this is explained in [11]. Put $\nu = 1$ if L is of positive characteristic, and otherwise let ν be the degree of L over $\mathbb{Q}_p$. In Theorem 5.2.2 of [7], the constant C , the integer ℓ and the family W should be allowed to depend additionally on ν . In Theorem B of [7], the constant C and the set W^ε should be allowed to depend additionally on ν . In Proposition 5.1.4, the constants C and C' should be allowed to depend additionally on ν .
 - On line 8 in Section 1.2 of [7] there is a typo: t should be send to ϖ_L instead of to φ_L .
 - The obviously intended inclusion $W_{y,s} \subset X_y$ should be added explicitly in Theorem 5.2.2 of [7] and the same for the inclusion $V_{y,\sigma} \subset Z_y$ in Theorem 4.2.3 of [5].
- Corrigendum to [9].
 - In Proposition 4.1 of [9] one should add the extra condition on the coefficients $c_{a,b,i,j}$ that they are non-torsion whenever $a \neq 0$. This is explained in [15].
- Corrigenda to [10].
 - A smoothness condition is missing in Proposition 4.3.1 of [10]; this smoothness condition is made explicit and explained in Remark 6.6 of [1].
 - In Definition 2.1.1 of [10], the norm is missing in the numerator of the difference quotient.
- Addenda to [12].
 - In [13, Remark A.1.8], a correction to Theorem 4.5.15 of [12] is made. Namely, it is noted that the order symbol $<$ should be part of the language $\mathcal{L}_{\mathcal{A}}$ in Definition 4.5.14 to make the statement of Theorem 4.5.15 correct.
 - In [13, Remark A.1.9], it is explained that one of the two proofs given for the quantifier elimination statement of Theorem 6.3.7 of [12] is incomplete, and this proof is completed in Remark A.1.9. One proof uses compactness, and, the other proof is more classical and follows the line of quantifier elimination

results going back to [17] and [21]. We thank Silvain Rideau for pointing this out to us.

- In Definition 4.1.2(ii) of [12], it should be added that $A_{m,n}$ is closed under permutation of the ξ -variables and also under permutation of the ρ -variables. Similarly, in Definition 4.3.1(ii) of [12], it should be added that A_m is closed under permutation of the ξ -variables. In Definition 3.1.1 of [12] it is optional to add it or not (the results of the paper are correct without adding the stability under permutation of the variables). Note that in [13, Definition 3.1.2(ii)], the stability under permutation is already explicitly mentioned, and hence, no correction is needed.
- Addendum to [14].
 - In the whole paper [14] the base field k is assumed to be of characteristic zero. This should have been made more explicit, but is implicitly clear from the context and used results.
- Addendum to [16].
 - In Definition 3.3 of [16], the power series F has to converge on an open neighborhood of the **closure** of the image of φ . This word ‘closure’ should be added, in line with previous preparation results as in [20] [23] [22].

REFERENCES

1. A. Aizenbud and R. Cluckers, *WF-holonomicity of C^{exp} -class distributions on non-archimedean local fields*, Forum Math. Sigma **8** (2020), no. e35, 1423–1456.
2. W. Castryck, R. Cluckers, Ph. Dittmann, and K. H. Nguyen, *The dimension growth conjecture, polynomial in the degree and without logarithmic factors*, Algebra Number Theory **14** (2020), no. 8, 2261–2294.
3. R. Cluckers, G. Comte, and F. Loeser, *Lipschitz continuity properties for p -adic semi-algebraic and subanalytic functions*, GAFA (Geom. Funct. Anal.) **20** (2010), 68–87.
4. ———, *Local metric properties and regular stratifications of p -adic definable sets*, Commentarii Mathematici Helvetici **87** (2012), no. 4, 963–1009.
5. ———, *Non-archimedean Yomdin-Gromov parametrizations and points of bounded height*, Forum of Mathematics, Pi **3** (2015), no. e5, 60 pages.
6. R. Cluckers, P. Dèbes, Y. Hendel, K. H. Nguyen, and F. Vermeulen, *Improvements on dimension growth bounds and effective Hilbert’s irreducibility theorem*, Under revision for Forum Math. Sigma (2023), arXiv:2311.16871.
7. R. Cluckers, A. Forey, and F. Loeser, *Uniform Yomdin-Gromov parametrizations and points of bounded height in valued fields*, Algebra Number Theory **14** (2020), no. 6, 1423–1456.
8. R. Cluckers and I. Halupczok, *Approximations and Lipschitz continuity in p -adic semi-algebraic and subanalytic geometry*, Selecta Math. (N.S.) **18** (2012), no. 4, 825–837.
9. ———, *Evaluation of motivic functions, non-nullity, and integrability in fibers*, Adv. Math. **409** (2022), Paper No. 108635.
10. R. Cluckers, I. Halupczok, F. Loeser, and M. Raibaut, *Distributions and wave front sets in the uniform non-archimedean setting*, Trans. Lond. Math. Soc. **5** (2018), no. 1, 97–131.
11. R. Cluckers, I. Halupczok, S. Rideau, and F. Vermeulen, *Hensel minimality. II : Mixed characteristic and a diophantine application*, (2021), arXiv:2104.09475.
12. R. Cluckers and L. Lipshitz, *Fields with analytic structure*, J. Eur. Math. Soc. (JEMS) **13** (2011), 1147–1223.

13. ———, *Strictly convergent analytic structures*, J. Eur. Math. Soc. (JEMS) **19** (2017), no. 1, 107–149.
14. R. Cluckers and F. Loeser, *Constructible motivic functions and motivic integration*, Inventiones Mathematicae **173** (2008), no. 1, 23–121.
15. ———, *Motivic mellin transformation*, **preprint** (2020).
16. R. Cluckers and D. J. Miller, *Loci of integrability, zero loci, and stability under integration for constructible functions on Euclidean space with Lebesgue measure*, Int. Math. Res. Not. IMRN (2012), no. 14, 3182–3191.
17. J. Denef and L. van den Dries, *p -adic and real subanalytic sets*, Annals of Mathematics **128** (1988), no. 1, 79–138.
18. L. van den Dries, D. Haskell, and D. Macpherson, *One-dimensional p -adic subanalytic sets*, Journal of the London Mathematical Society **59** (1999), no. 1, 1–20.
19. A. Forey, *Motivic local density*, Math. Z. **287** (2017), no. 1-2, 361–403. MR 3694680
20. J.-M. Lion and J.-P. Rolin, *Intégration des fonctions sous-analytiques et volumes des sous-ensembles sous-analytiques. (integration of subanalytic functions and volumes of subanalytic subspaces)*, Ann. Inst. Fourier **48** (1998), no. 3, 755–767, (French).
21. L. Lipshitz and Z. Robinson, *Rings of separated power series and quasi-affinoid geometry*, Paris: Société Mathématique de France, vol. 264, Astérisque, 2000.
22. D. J. Miller, *A preparation theorem for Weierstrass systems*, Trans. Amer. Math. Soc. **358** (2006), no. 10, 4395–4439 (electronic).
23. A. Parusiński, *Lipschitz stratification of subanalytic sets*, Ann. Sci. École Norm. Sup. (4) **27** (1994), no. 6, 661–696. MR 1307677 (96g:32017)

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