Analytic Functions of Several Complex Variables

by

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p.8, 2^{nd} formula from bottom, misprint "$\ldots \geq \log |f(0)$" should be "$\ldots \geq \log |f(0)|$"

p.9, 10. Corollary, first line of proof, misprint "V has a nonempty interior", should be "V has no interior".

p.22, 8. Theorem. The hypothesis that g_1 and g_2 are relatively prime must be added. The proof must be corrected.

p.42, 4^{th} line from bottom, misprint: "$\triangle \subset K$", should be: "$K \subset \triangle$".

p.45, 4. Definition. Add "$\ldots K_n \subset \operatorname{int} K_{n+1}$.

p.50, formula near middle of page should be

$$D^j(f \circ L)(z) = \sum_{k \geq j} \frac{1}{(k-j)!}\, h(D^h f)\, z_1^{h-j_1} \,\ldots\, z_n^{k_n-j_n}$$

instead of $\ldots = \sum_{k \geq j} \frac{j!}{k!}\, h(\ldots) \ldots$.

pp.52-54, 13. Lemma, 16. Lemma, 17. Theorem. These need correction.

p.62, proof of 18. Lemma ... The function k is defined only on U and need not be bounded on U. Replace U by a neighborhood V of P, with V relatively compact in U.

p.68, just above 1 Definition, misprint: "every germ $f \epsilon_n O$ can be made regular ..." should be: "... every non-zero germ $f \epsilon_n O$ ..."

p.77, 3. Theorem, misprint: "... of degrees 1 and m ...", should be: "...degrees ℓ and m ..." Also, in formula (7), the first term should have a right superscript P.

p.88, 11. Theorem, misprint: "... between a variety ..." should be: "... between the germ of a variety..."

p.89, 14. Corollary. This does not follow from 13, without the use of 18, which is unproven at this point.

p.89, proof of 15. Theorem. This uses the Hilbert Nullstellensatz, which has not been proven yet.

p.95, second paragraph. Since ${}_kO$ is not a field, one cannot talk about "the minimal polynomial of y_j over ${}_kO$". Instead, define $q_j(x)$ as the minimal monic polynomial of y_j over $k^{\mathcal{F}}$ and use the integral closure to deduce that $q_j(x)$ has coefficients in ${}_kO$.

p.95, proof of 3 Lemma. Should be: "Certainly $q_j(z_j)$ is regular in z_j of order $\leq r_j$", and later: "$q_j(x)$ is monic and of degree $\leq r_j$".

p.96, proof of 5. Lemma misprint: "$\ldots + \sum_{i=0}^{r_{n-1}} \cdots$", should be "$\ldots \sum_{i=0}^{r_n - 1} \ldots$"

p.97, line 8 from bottom. Replace "$a_j = \frac{T_j(a_{k+1})}{D(a_0)}$" by "$a_j = \frac{T_j(a_0; a_{k+1})}{D(a_0)}$."

p.99, paragraph (iii). The fact that $\pi^{-1}(a_0) \cap \bar{w}$ is finite is clear, but that it consists of r points, $r \leq t$, follows only from the construction of the R's described later and is not obvious. On p.100, the enumeration of $\pi^{-1}(a_n) \cap \bar{w}$ is possible because functions R's can be constructed from suitable h's, but it is not obvious a priori. To see that the roots of $R(X) = 0$ are exactly the values of h on $\pi^{-1}(a)$, proceed as follows. Let $a \in V(D)$, be a root of $R(a)(x) = 0$; $R(a)(x) \not\equiv 0 \Longrightarrow$ by Rouché's theorem, given $\epsilon > 0$, $\exists$ a neighborhood U of a such that $\forall a' \in U$, $R(a')(x) = 0$ has a root within ϵ of b. Thus there exist sequences b_n, $b_n \to b$, and $a_n \in \nabla_u - V(D)$, $a_n \to a$, such that $R(a_n)(b_n) = 0$. Pick $z_n \in \pi^{-1}(a_n) \cap W$ such that $h(z_n) = b_n$; we may assume $z_n \to z$. Clearly $\pi(z) = a$, $z \in \bar{W}$. Then

$$\begin{array}{ccc} h(z_n) & \to & h(z) \\ \| & & \\ b_n & \to & b \end{array}$$

$\Longrightarrow \exists\ z \in \pi^{-1}(a) \cap \bar{W}$ with $h(z) = b$. If$z \in \pi^{-1}(a) \cap \bar{W}$ and $h(z) = b$, pick $z_n \in W$, $z_n \to z$, $b + a_n = \pi(z_n)$, $b_n = h(z_n)$. Then $R(a_n)(b_n) = 0$, $a_n \to a$, $b_n \to b \Longrightarrow R(a)(b) = 0$.

p.100, roughly in the middle, misprint: "Then f vanishes on V", should be: "Then f vanishes on W".

p.102, proof of 6. Lemma, line 3 "... such that $\bar{D}'$ is closed" should be " ... such that $\bar{D}'$ is compact".

pp.101, References to lemmas, theorems, etc. in this section are incorrectly numbered.

p.105, proof of 15. Theorem. In choosing D', add the requirement that $\pi^{-1}(\pi(x_0)) \cap D' = \{x_0\}$.

p.109, just above formula (1), the P in $P(y)$ should not be capitalized.

p.111, 4. Definition. (ii) is not strong enough; instead: (ii) $\mathcal{P} \cap_k O[z_j]$ for $j > k$ contains a Weierstrass β polynomial.

p.112, 7. Theorem. The reasoning in the proof is circular.

p.115, 14. Theorem. The proof shows that $V \cap V(f)$ is of pure dimension $k-1$.

p.119, 6th line from bottom, misprint: "... to the subset $\mathcal{U}$", should be: "subset U".

p.124, last line before 1 Definition, misprint "$f_z = (s_z, t_z)$" should be "$f_z = (g_z, h_z)$".

p.125, The construction of the sheaf $\mathcal{H}om(\mathcal{L}, T)$ requires quite a bit more care.

p.135, second line from top μ maps into ${}^{2m}_{n-1}O\,[z_n]$, not ${}^{m}_{n-1}O\,[z_n]$.

p.137, 3 Lemmas. Interchange μ and λ in the first line.

p.149, second line from bottom. Replace $\varphi_j^{-1} \circ \varphi_i(z_0 \dots z_n)$ by $\varphi_j \circ \varphi_i^{-1}(z_0, \dots z_n)$.

p.153, second line from top. Replace $i_*(s) = s$ by $i_*(\tilde{s}) = s$.

p.154, end of 6th paragraph, misprint: "thus" instead of "hus".

p.161, 1. Proposition, and proof of proposition. Replace p by x.

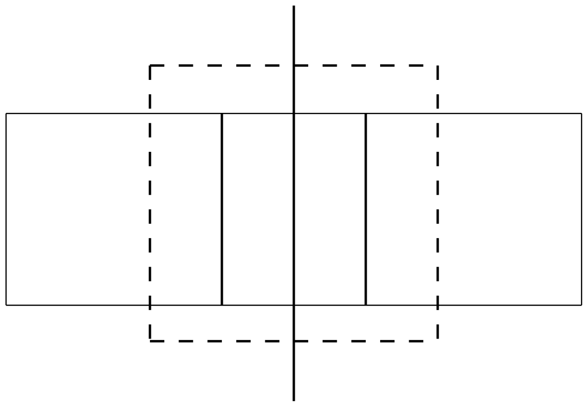
p.162, Proof of the Proper Mapping Theorem needs corrections. It is not too difficult to prove that the union of the singular set with those regular points where F fails to have maximal rank is a subvariety. This might simplify the proof.

p.174, proof of 3. Corollary, line before last: ψg should be $\psi(g)$.

p.190, third line from top. Replace "direct sum" by "direct product".

p.190, big diagram. Somewhere in the middle a right parenthesis is missing.

p.199, The diagram is incorrectly drawn. Should be



p.209, 1. Proposition. "... which converge uniformly on X also ..." should be, instead, " ... informally on K ...".

p.213, 9th line from bottom, replace "Then V is a closed manifold" by "... subvariety...". Next line, replace "Theorem 6, $F6(a)$" by "Theorem VI, $F6(a)$".

p.217, fourth line. Replace last inequality $\ldots \leq 1$ by strict inequality $\ldots < 1$.

p.217, 2. Lemma. Require that V be open.

p.217, in the inequality $|r^N f_1(x)| \geq (Cr)^N - 1 \geq 2\pi N$ replace $f_1(x)$ by $f_i(x)$.

p.216-218, Bishop defines an analytic polyhedron to be a connected component of what you define to be an analytic polyhedron. The omission of connectedness causes trouble.

p.240, second line from bottom. Replace $\bar{V}_i \subset V_i \subset U_i$ by $\bar{V}_i \subset U_i \subset U$.

p.242, 12. Lemma. Replace "for any neighborhood U of X" by "... neighborhood U of x". Later, in the proof, the sheaf $\mathcal{S}$ is denoted by the letter S.

p.246, in the second paragraph of the proof of 20. Theorem, the F in "Then $(F^i_z - \varphi^i)_x \in I^2$" should not be capitalized.

p.262, 2. Definition, last line. Require D to be open and relatively compact, not compact.

p.262, in the paragraph following the definition $\frac{\partial\psi}{\partial\varphi}$. is rather unconventional notation.

p.269, 2nd paragraph, 2nd line, replace $\{m \in \mathcal{M}_x, f^s_m \in O_x\}$ by $\{m \in \mathcal{M}, f^s m \in O_x\}$.

p.269, proof of 7. Theorem. It is important to note that E can be chosen to be strictly Levi pseudocomvex itself, otherwise one cannot conclude that $\dim H^1(E, \mathcal{N}^{s+1}) < \infty$.

p.270, 10. Theorem. The proof is very incomplete.

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