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Yoshiro Mori, "*On the integral closure of an integral domain*", pp. 249—256.

It was wrong that $\bar{\mathfrak{o}}^* \subseteq \tilde{\mathfrak{o}}^*$. But since $\mathfrak{o}^* \subseteq \tilde{\mathfrak{o}}^* \subseteq \bar{\mathfrak{o}}^*$, by the following Lemma 7, if we take $\bar{\mathfrak{o}}^*$ instead of $\mathfrak{R}^*$ in the proof of Theorem 1, we can correct the proof of Theorem 1 as follows:

Lemma 7. Let the ring $\mathfrak{R}$ be mapped onto $\tilde{\mathfrak{R}}$ by the ring homomorphism of $\mathfrak{R}^*$ onto $\mathfrak{R}^*/\mathfrak{l}^* = \mathfrak{o}^*$ and $\tilde{K}$ be the quotient field of $\tilde{\mathfrak{R}}$, then $\tilde{K} \cap \bar{\mathfrak{o}}^* = \bar{\tilde{\mathfrak{R}}}$ where $\bar{\tilde{\mathfrak{R}}}$ is the integral closure of the local domain $\tilde{\mathfrak{R}}$ in $\tilde{K}$.

Since any element of $\tilde{K}$ is expressed as $\tilde{a}/\tilde{b}$ where $\tilde{a}$ and $\tilde{b}(\neq 0) \in \tilde{\mathfrak{R}}$, if $\tilde{a}/\tilde{b} \in \bar{\mathfrak{o}}^*$, then $(\tilde{a}/\tilde{b})^m + \tilde{c}_1^*(\tilde{a}/\tilde{b})^{m-1} + \cdots + \tilde{c}_i^*(\tilde{a}/\tilde{b})^{m-i} + \cdots + \tilde{c}_m^* = 0$ where $\tilde{c}_i^* \in \mathfrak{o}^*$. Hence $\tilde{a}^m + \tilde{c}_1^*\tilde{a}^{m-1}\tilde{b} + \cdots + \tilde{c}_i^*\tilde{a}^{m-i}\tilde{b}^i + \cdots + \tilde{c}_m^*\tilde{b}^m = 0$. Let c_i^*, a, b respectively representatives in $\mathfrak{R}^*$ of the residue classes $\tilde{c}_i^*$, $\tilde{a}$, $\tilde{b}$ where we choose a, b from $\mathfrak{R}$, then $a^m + c_1^*a^{m-1}b + \cdots + c_i^*a^{m-i}b^i + \cdots + c_m^*b^m \in \mathfrak{l}^*$. Hence $(a^m + c_1^*a^{m-1}b + \cdots + c_i^*a^{m-i}b^i + \cdots + c_m^*b^m)^\rho = 0$, provided $\mathfrak{l}^{*\rho} = (0)$, and also $a^M + d_1^*a^{M-1}b + \cdots + d_i^*a^{M-i}b^i + \cdots + d_M^*b^M = 0$ where $d_i^* \in \mathfrak{R}^*$. This shows that a^M is in $(a^{M-1}b, \cdots, a^{M-i}b^i, \cdots, b^M)\mathfrak{R}^*$ and therefore in $(a^{M-1}b, a^{M-2}b^2, \cdots, a^{M-i}b^i, \cdots, b^M)\mathfrak{R}^* \cap \mathfrak{R} = (a^{M-1}b, \cdots, a^{M-i}b^i, \cdots, b^M)\mathfrak{R}$. Thus we can write $a^M + d_1a^{M-1}b + d_2a^{M-2}b^2 + \cdots + d_ia^{M-i}b^i + \cdots + d_Mb^M = 0$ where $d_i \in \mathfrak{R}$ and also $\tilde{a}^M + \tilde{d}_1\tilde{a}^{M-1}\tilde{b} \cdots + \tilde{d}_i\tilde{a}^{M-i}\tilde{b}^i + \cdots + \tilde{d}_M\tilde{b}^M = 0$ where $\tilde{d}_i$ are the residue classes of d_i modulo $\mathfrak{l}^*$. Hence $\tilde{a}/\tilde{b} \in \bar{\tilde{\mathfrak{R}}}$ and $\bar{\tilde{\mathfrak{R}}} \subset \bar{\mathfrak{o}}^*$ because every element of $\mathfrak{R}$ is a non-zero-divisor in $\mathfrak{R}^*$. This completes the proof of our Lemma 7.

Proof of Theorem 7.

If α is an element of $\mathfrak{R}$, α is a non-zero-divisor in $\mathfrak{R}^*$. Let $\tilde{\alpha}$ denote the residue class of $\alpha \in \mathfrak{R}^*$ modulo $\mathfrak{l}^*$. Then $\tilde{\alpha}\bar{\mathfrak{o}}^*$ can be expressed as a finite intersection of symbolic powers of minimal prime ideals by Proposition 3. If $\tilde{\alpha}\bar{\mathfrak{o}}^* = \cap Q_{ij}^*$ is an irredundant intersection of symbolic powers of minimal prime ideals, we put $Q_{ij}^* \cap \bar{\tilde{\mathfrak{R}}} = \bar{\tilde{\mathfrak{q}}}_{ij}$. Then $\tilde{\alpha}\bar{\tilde{\mathfrak{R}}} = \cap \bar{\tilde{\mathfrak{q}}}_{ij}$ by Lemma 7. As we may assume that $\tilde{\alpha}\bar{\tilde{\mathfrak{R}}} = \underset{\lambda}{\cap} \bar{\tilde{\mathfrak{q}}}_\lambda$ is an irredundant intersection of primary ideals $\bar{\tilde{\mathfrak{q}}}_1, \bar{\tilde{\mathfrak{q}}}_2, \cdots, \bar{\tilde{\mathfrak{q}}}_r$, the prime ideals $\bar{\tilde{\mathfrak{p}}}_i$ belonging to the primary ideals $\bar{\tilde{\mathfrak{q}}}_i$ is a minimal prime ideal in $\bar{\tilde{\mathfrak{R}}}$. For, if we assume that $\bar{\tilde{\mathfrak{p}}}_i$ is not minimal in $\bar{\tilde{\mathfrak{R}}}$, similarly to the proof of Prop 3, $(\bar{\tilde{\mathfrak{p}}}_i)^{-1} \supset \bar{\tilde{\mathfrak{R}}}$, and $(\bar{\tilde{\mathfrak{p}}}_i)^{-1}(\bar{\tilde{\mathfrak{p}}}_i) = \bar{\tilde{\mathfrak{p}}}_i$. Hence, if $\tilde{x} \in (\bar{\tilde{\mathfrak{p}}}_i)^{-1}$ and $\tilde{x} \notin \bar{\tilde{\mathfrak{R}}}$, then $\tilde{x}\bar{\tilde{\mathfrak{p}}}_i \in \bar{\tilde{\mathfrak{p}}}_i$ and also $\tilde{x}^N\bar{\tilde{\mathfrak{p}}}_i \in \bar{\tilde{\mathfrak{p}}}_i$ $(N = 1, 2, \cdots, n, \cdots)$.