dimension lattices, Trans. Amer. Soc., to appear (Theorem 4), and condition (4) of the second theorem in Abstract 583-34, these Notices, October, 1961. The theorem has been proved for complemented modular lattices by Amemiya and Halperin (Canad. J. Math. 11 (1959), 485). (Received March 4, 1963.)

601-36. A. E. HURD, Massachusetts Institute of Technology, Cambridge, Massachusetts. Measure space homomorphisms and point transformations.

Let (X,S,μ) and (Y,T,ν) be measure spaces, and let M and N be the Boolean rings of μ- and ν-measure zero in S and T respectively. Denote by S' and T' the Boolean quotient rings S/M and T/N. A measure space homomorphism ϕ: $(X,S,\mu) \longrightarrow (Y,T,\nu)$ is a Boolean ring homomorphism from S' to T' which also satisfies the condition: if $\{A_i' : i = 1,2,\ldots\}$ is a sequence in S' and $A_i' \wedge A_j' = 0$ for all i and j then $\phi(\vee_{i=1}^{\infty} A_i') = \vee_{i=1}^{\infty} \phi(A_i')$. Here the notation $\wedge$ and $\vee$ have been used for the operations induced on S' and T' by the operations $\cap$ and $\cup$ in S and T. It is shown that, under quite general assumptions on the measure space (X,S,μ), a measure space homomorphism ϕ can be considered as generated by a measurable point transformation ψ from a subset of Y to X in a natural way. If ϕ is an isomorphism the mapping ψ can be chosen to be 1-1. This generalizes a work of von Neumann (Ann. of Math. 33 (1932), 574-586) and von Neumann and Halmos (Ann. of Math. 43 (1942), 332-350). (Received March 4, 1963.)

601-37. F. W. LAWVERE, 8030 Owensmouth Avenue, Canoga Park, California. The "group ring" of a small category. Preliminary report.

Let R be an associative ring with unity and let $\mathbb{C}$ be any small category. Define $R[\mathbb{C}]$ as the set of all R-valued functions b defined on the maps of $\mathbb{C}$ such that for each object $C \in \mathbb{C}$, $\{u:(u)b \neq 0$ and C is the codomain of $u\}$ is finite, together with map-wise addition and the multiplication $(u)(a \cdot b) = \sum_{x \circ y = u} (x)a \cdot (y)b$. This gives a functor $\mathcal{R}_1 \times \tilde{\mathcal{C}}_1 \longrightarrow \mathcal{R}_1$ where $\tilde{\mathcal{C}}_1$ is the category of all functors T between small categories such that $|T|$ (the restriction to objects) is an isomorphism. For a monoid $\mathbb{C}$ (a category with one object) $R[\mathbb{C}]$ is the usual; for a preorder $\mathbb{C}$ ($\mathbb{C}$ has at most one map with given domain and codomain) $R[\mathbb{C}]$ is a subring of a certain matrix ring (see Mitchell, Brown University dissertation (1960)). There are always diagonal maps $R \longrightarrow R^{|\mathbb{C}|} \longrightarrow R[\mathbb{C}]$, in $\mathcal{R}_1$. If $\mathcal{A}_1^{(R)}$ denotes the category of R-modules and $\mathcal{A}_1^{(R)\mathbb{C}}$ denotes the category of all functors $\mathbb{C} \longrightarrow \mathcal{A}_1^{(R)}$ and natural transformations, there is always a functor Π: $\mathcal{A}_1^{(R)\mathbb{C}} \longrightarrow \mathcal{A}_1^{(R[\mathbb{C}])}$ which admits a retraction, and which is an isomorphism if the set of objects of $\mathbb{C}$ is finite. For any $\mathbb{C}$ and any $A: \mathbb{C} \longrightarrow \mathcal{A}_1^{(R)}$, $\mathrm{Hom}_{R[\mathbb{C}]}(R, A\Pi) = \varprojlim(A)$. (Received March 4, 1963.)

601-38. W. H. MILLS, Yale University, New Haven, Connecticut. Polynomials with minimal value sets.

Let k be a finite field of characteristic p that contains exactly q elements, $q = p^n$. Let F(x) be a polynomial in one variable over k of degree d, and let r + 1 denote the number of distinct values $F(\mu)$ as μ ranges over k. It is almost immediate that $r \geqq [(q - 1)/d]$. Carlitz, Lewis, Mills, and Straus [Mathematika 8 (1961), 121-130] raised the question of the determination of all polynomials

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A. BERIN. Transformation of power series. Page 269, Abstract 601-5.

Line 7. For "$\sum_{m=1}^{\infty}(-1)^{m-1}(\Delta^{m-1}a_1)(x-1)^m$" read "$\sum_{m=1}^{\infty}(-1)^{m-1}(\Delta^{m-1}a_1)/(z-1)^m$".

F. W. LAWVERE. The "group ring" of a small category. Preliminary report. Page 280, Abstract 601-37.

Last sentence should read: "For every $\mathfrak{C}$ there is an $R[\mathfrak{C}]$-module Q such that for all A: $\mathfrak{C} \longrightarrow \mathcal{A}^{(R)}$ one has $\varprojlim_{\mathfrak{C}}(A) \cong \mathrm{Hom}_{R[\mathfrak{C}]}(Q, A\Pi)$."

J. A. WOLF. The differentiable fibre bundle associated to a complete map. Page 291, Abstract 63T-135.

The results asserted are not correct; in the proof it was erroneously assumed that a semigroup homomorphism is open. The following result is salvaged.

Theorem. Let $\pi: E \longrightarrow B$ be a differentiable map of connected paracompact manifolds. Then the following conditions are equivalent. (i) $\pi: E \longrightarrow B$ is a locally trivial differentiable fibre space. (ii) $\pi: E \longrightarrow B$ is the fibre space underlying a differentiable fibre bundle with topological structure group. (iii) π is of rank dim.B, and E and B admit complete Riemannian metrics for which π is complete (see Abstract 63T-135 for definition). (iv) π is of rank dim.B; given a complete Riemannian metric on B, there is a complete Riemannian metric on E for which π is complete.