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Non-stationarity of isomorphism between AF algebras defined by stationary Bratteli diagrams. (English. English summary)

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The AF C^*-algebras dealt with here are given by constant $N \times N$ incidence matrices (with nonnegative integer entries) which are primitive, i.e., there is a positive power of the matrix which has only positive entries. Thus let $\mathfrak{A}$ and $\mathfrak{B}$ be such AF-algebras defined by incidence matrices J and K, respectively. It follows from work of O. Bratteli [Trans. Amer. Math. Soc. 171 (1972), 195–234; MR 47#844] that $\mathfrak{A}$ and $\mathfrak{B}$ are stably isomorphic if and only if there exist natural numbers $n_1, n_2, \ldots, m_1, m_2, \ldots$ and matrices with non-negative integer entries $A_1, A_2, \ldots$ and $B_1, B_2, \ldots$ such that $J^{n_k} = B_k A_k$ and $K^{m_k} = A_{k+1} B_k$ for $k = 1, 2, \ldots$. Hence, in order that $\mathfrak{A}$ and $\mathfrak{B}$ be stably isomorphic, it is sufficient that there exist a positive integer k and matrices A and B (with non-negative integer entries) such that $AJ = KA$, $BK = JB$, $BA = J^k$ and $AB = K^k$. One aim of the article is to show that the latter condition is strictly stronger than the former. Observe also that these conditions are interpreted in terms of dimension groups $G(J)$ and $G(K)$ and shift automorphisms σ_J and σ_K on $\mathfrak{A}$ and $\mathfrak{B}$, respectively. *Paul Jolissaint* (CH-NCH)