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*A necessary condition for $A *_{a=b} B$ to be LERF.* (English)

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A group G is said to be LERF (locally-extended residually finite) if for each subgroup H and each $g \in G \setminus H$, there is a finite-index subgroup K containing H and avoiding g . Here a quite transparent LERF group A is exhibited with the property that the free product $A *_{a=b} B$ with a certain cycle amalgamated is not LERF for a very large class of groups B . This further illuminates the gap between the known necessary conditions and the known sufficient conditions for a free product of LERF groups with cyclic amalgamation to again be LERF.

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