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Metacommutation in quaternion orders and actions on the Bruhat-Tits tree. Preliminary report.

The metacommutation problem in a quaternion order \mathcal{O} gives rise to a permutation of the left ideals of a given prime norm \mathfrak{p} . When \mathcal{O} is Eichler, we can interpret each permutation locally as an action on the Bruhat-Tits tree associated with the prime. We give a correspondence between the ideals of local norm \mathfrak{p} and a certain set of segments in the tree, and use this interpretation to describe the cycle structure of the metacommutation permutation. (Received September 17, 2019)