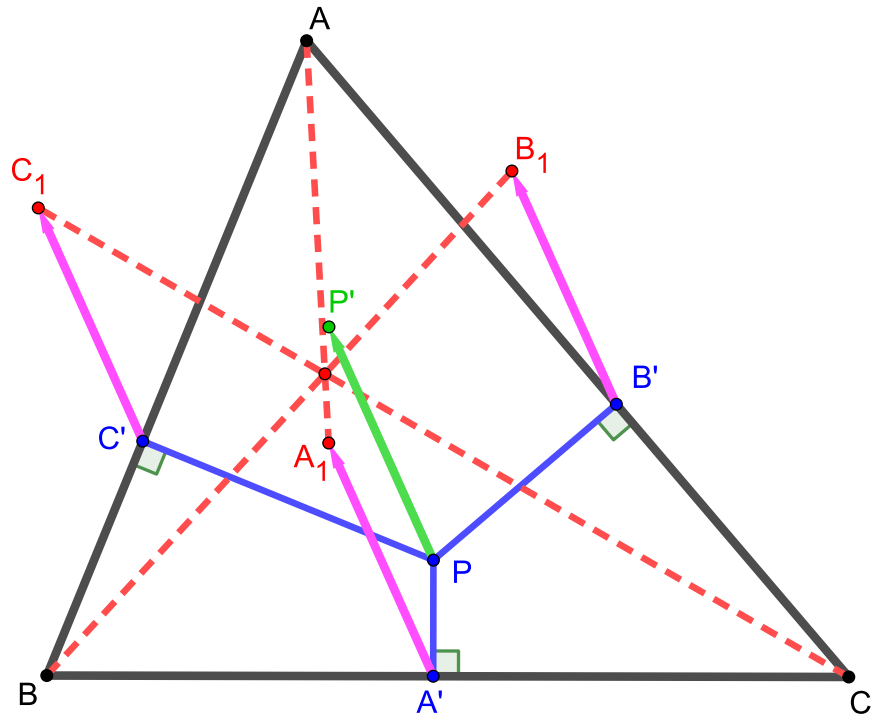


Vu Thanh Tung

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**Theorem.** Let  $P$  is a point on the same plane with  $\triangle ABC$  such that  $P$  is different from the incenter or any excenters and  $P$  is not on the circumcircle of this triangle. Let  $P'$  be the isogonal conjugate of  $P$ . Let  $A', B', C'$  be respectively the orthogonal projection of  $P$  on lines  $BC, CA, AB$ . Let  $A_1, B_1, C_1$  be respectively the image of  $A', B', C'$  under the translation transform with translation vector  $\overrightarrow{PP'}$ .

Then three lines  $AA_1, BB_1, CC_1$  are concurrent.



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