A Proposed Notation for the Geometry of the Triangle.

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Everyone who has studied geometry very long has felt the need of a uniform notation. Much time is wasted in getting acquainted with the notations of different authors. This is especially true in modern pure geometry, where the figures are necessarily complex. The notation here proposed has been successfully used in the schoolroom. It is partially used by several well-known writers on modern geometry. It is hoped that its simplicity and system will commend it.

Let the triangle always be lettered ABC and in the usual positive direction of mathematics, i. e. counter clock-wise. Designate the sides, opposite the angles, a, b, c, and when necessary to refer to them by number, use 1, 2, 3. Particular points are made the basis of the notation. An example will make the method clear.

Suppose Z is some particular point. In studying such a point we usually need the points of intersection with the sides of the lines from the vertices through Z, and also the feet of the perpendiculars from Z to the sides. We designate the first set of points as Z'_a, Z'_b, Z'_c and the second as Z_a, Z_b, Z_c.

For the particular points, the symbol most frequently used has been in general selected.

A	B	C	=	vertices of the fundamental triangle.
	M		=	centre of the circumcircle.
M_a	M_b	M_c	=	mid-points of the sides of the triangle.
	I		=	centre of the inscribed circle.
I_1	I_2	I_3	=	centres of 1st, 2d, 3d escribed circles.
I_a	I_b	I_c	=	points of contact of sides with inscribed circle.
I'_a	I'_b	I'_c	=	points of intersection of AI, BI, CI with the sides.
I_{1a}	I_{1b}	I_{1c}	=	points of contact of sides with 1st escribed circle, and so on.
	G		=	centroid of ABC.
G_a	G_b	G_c	=	feet of perpendiculars to the sides from G.
	K		=	symmedian point (Grebe's).
K_a	K_b	K_c	=	feet of perpendiculars to the sides from K.
K'_a	K'_b	K'_c	=	points of intersection of AK, BK, CK with sides.
K_1	K_2	K_3	=	1st, 2d and 3d ex-symmedian points.
K_{1a}	K_{1b}	K_{1c}	=	feet of perpendiculars to the sides from K, and so on.
K'_{1a}	K'_{1b}	K'_{1c}	=	points of intersection of AK_1, BK_1, CK_1 with sides, and so on.
	H		=	ortho centre.

H_a	H_b	H_c	=	feet of altitudes of triangle.
Ω_1	Ω_2		=	the Brocard points.
A_1	B_1	C_1	=	Bocard's 1st triangle.
A_2	B_2	C_2	=	Brocard's 2d triangle.
	F		=	centre of the nine points circle.
	Q		=	Nagel's point.
Q_1	Q_2	Q_3	=	associated Nagel points.
A_3	B_3	C_3	=	Nagel's triangle.
A_4	B_4	C_4	=	Schwatt's triangle.
	N		=	Tarry's point.
	R		=	Steiner's point.
A'	B'	C'	=	mid-points of the arcs of the circumcircle subtended by the sides of the triangle.
A''	B''	C''	=	opposite points from $A'B'C'$ on circumcircle.
	P		=	Gergonne point.
P_1	P_2	P_3	=	the associated Gergonne points.
a	b	c	=	the sides of the triangle.
h_1	h_2	h_3	=	the three altitudes.
m_1	m_2	m_2	=	the medians.
	r		=	radius of incircle.
r_1	r_2	r_3	=	radius of excircle.
	s		=	$\frac{1}{2}(a + b + c)$.
s_1	s_2	s_3	=	$s - a$, $s - b$, $s - c$.
	R		=	radius of circumcircle.
$\triangle$	D		=	area of triangle.