In the contrary case, let the original diagram *oklmn* be arbitrary. Applying a transformation of the aforesaid kind which changes m,n into m_1, n_1, let us consider the two intermediate triangles olm, onk, which are changed into olm_1, on_1k. On the basis lm_1, we can construct a triangle lm_1o_1 directly similar to lmo and, on the basis n_1k, the triangle n_1ko_1' directly similar to nko; in general, the two new vertices o_1, o_1' will be different. They will coincide if the original diagram is a reduced one.[9]

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[9] The problem would require further investigation because there is no reason not to consider the *complete* quadrilateral formed by the sides of q and, therefore, we ought to apply the present considerations to three diagonals instead of two.

NOTE ON CONVEX SPHERICAL CURVES

L. A. SANTALÓ

1. **Introduction.** The formula

$$L = \int_0^{\pi} \alpha d\tau \tag{1}$$

for plane convex curves in which L is the length and α the breadth according to the direction τ is well known [**2**, p. 65].[1]

The principal object of the present note is to obtain the formula (8) which generalizes (1) to convex curves on the sphere of unit radius and to deduce from this some consequences.

2. **Principal formula.** Let us consider the sphere of unit radius. A closed curve on the sphere is said to be *convex* when it cannot be cut by a great circle in more than two points. It is well known that a convex curve divides the surface of the sphere into two parts, one of which is always wholly contained in a hemisphere; that is, there is always a great circle which has the whole convex curve on the same side. When we say the area of a convex curve K we understand the area of that part of the surface of the sphere which is bounded by K and is smaller than or equal to a hemisphere.

Let K be a convex curve on the sphere of unit radius of length L and area F ($L \leqq 2\pi$, $F \leqq 2\pi$). The great circles which have only one common point or include a complete segment common with the curve

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[1] Numbers in brackets refer to the references cited at the end of the paper.