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Journal Name:	<u>British Journal of Mathematics & Computer Science</u>
Manuscript Number:	Ms_BJMCS_33945
Title of the Manuscript:	Juxtaposition operation to obtain Latin squares
Type of the Article	Short Communication

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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	The paper under review is a short note that deals with an implementation into a C program of the generation of a Latin square by means of two methods: the <i>juxtaposition operation</i> and the <i>Kronecker's product</i>. Even if both methods are introduced in the paper as being new, they constitute indeed a specific example of the so-called "direct product of two Latin squares" (see, for instance, section 4:3 in the handbook: <i>J. Dénes and A. D. Keedwell. Latin squares and their applications, Academic Press, New York-London, 1974</i>). More specifically, the Kronecker's product $A_1 \circ A_2$ exposed by the authors is indeed the known direct product $A_2 \times A_1$, whereas the juxtaposition $A_1 * \dots * A_1$ (n times) consists of the direct product of A_1 with the cyclic Latin square $\begin{matrix} 12\dots(n-1)n \\ n1\dots(n-2)(n-1) \\ \dots\dots\dots \\ 23\dots n1 \end{matrix}$ Moreover, the juxtaposition $A_1 * \dots * A_r$ exposed by the authors (with r possible distinct Latin squares) is indeed the so-called non-uniform product of Latin squares (defined, for instance, by Dénes and Keedwell in page 104 of the mentioned reference). At most, the paper could be rewritten in order to put its goal not into the novelty of these methods, but into the implementation of the direct product of Latin squares into a C program. In such a case, I think that a more general version of the program should be exposed. The current version is only valid for a very specific example. In any case, a deeper study of distinct methods to generate Latin squares should be exposed in the introduction, as, for	All comments have been taken into account We want to remark that $A_1 * \dots * A_r$ is different than $A_1 \times \dots \times A_r$ the first one is of order nr and the second one of n^r



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	instance: <i>M. Jacobson and P. Matthews: Generating uniformly distributed Latin squares. J. Combin. Des. 4(6), 405–437 (1996)</i> Some references about the possible application of Latin squares in Cryptography should also be indicated.	
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Minor REVISION comments	In the first paragraph of page 2, it is indicated by the authors that the number of Latin squares is not known for order $n \geq 10$. Nevertheless, it is known for order $n \leq 11$, as it is indeed indicated in Section 2. At least the following three references should be indicated in this regard: A. Hulpke, P. Kaski and P.R.J. Östergård, The number of Latin squares of order 11, Math. Comp. 80 (2011) 1197-1219. G. Kolesova and C.W.H. Lam, L. Thiel. On the number of 8x8 Latin squares, J. Combin. Theory Ser. A 54 (1990) 143--148. McKay~BD., Meynert~A., Myrvold~W. Small Latin squares, quasigroups, and loops, J. Combin. Des. 15 (2007) 98--119. In my opinion, the first goal of the paper that is indicated in the second paragraph of page 2 is too ambitious for a short note ("compiling the existing information in the literature on Latin squares"). There exist distinct surveys on the topic in the literature to which the authors may refer. From my point of view, at least one example of Latin square should be indicated in Section 2. The only example that appears in the paper is the figure in Section 4, but that figure is indeed not clear. An example about the generation of Latin squares by cyclic displacing may also be exposed. Further, in the second paragraph of Section 3, it is indicated that the exposed method optimizes the generation of random Latin squares. Nevertheless, the exposed method is based on known Latin squares and hence the mentioned randomization is not as clear as in other known methods in the literature.	All comments have been taken into account
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	Revise this aspect. Finally, in my opinion, the example of Latin square exposed in Section 4 should be simplified without using those power of 2, but only symbols from 1 to 16, or, even, hexadecimal symbols.	
<u>Optional/General</u> comments	Since the authors introduce Latin squares from a historical point of view, it should be exposed some reference in this regard. For instance: <i>L. D. Andersen (2007). Chapter on The history of latin squares. Department of Mathematical Sciences, Aalborg University. (Research Report Series; No. R-2007-32)</i> It would also be very interesting and primordial to cite some bedside book on the topic as, for instance, the previously mentioned book: <i>J. Dénes and A. D. Keedwell. Latin squares and their applications, Academic Press, New York-London, 1974.</i>	All comments have been taken into account Thank you very much for your valuable comments, which have helped to improve the paper.