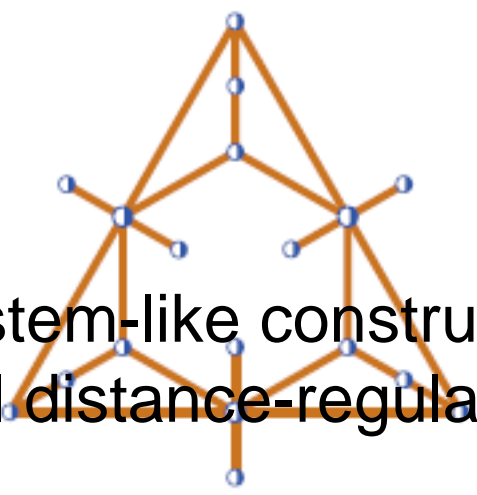


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Hemisystem-like constructions of classical distance-regular graphs

Content :

If a graph is distance-regular with classical parameters (d,b,α,β) with b negative, then Weng (1999) proves that under certain assumptions there are only three possibilities for the type of the parameters. We will propose a construction of graphs of the third type, no examples of which are known yet if the diameter is at least three. This generalizes a result by Segre (1965) on hemisystems for diameter two. Several properties of such graphs will be discussed, such as equitable partitions. We will also show how imprimitive cometric association schemes arise from this construction. A discussion of the feasibility of this construction will also be included.

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