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Examples of Borcherds Lie algebras associated to physical spaces of vertex algebras, en route to a related group construction

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Abstract:
We give some examples of constructing a Borcherds algebra from a physical space of a vertex algebra. By utilizing the invariant bilinear form, and in the case of the monster the "no ghost theorem" one can obtain a system of generators and relations. Applying some previous work one can proceed to examine possible group constructions using non-nilpotent actions of specific Chevalley generators.