



Word maps with small image in simple groups

[Matthew Levy](#)

(Submitted on 6 Jun 2012)

We construct non-power words which have small image in $SL(2; 22n)$ for each n . In particular, the corresponding word maps are non-surjective. We also use this to construct word maps whose values are precisely the identity and a single equivalence class of elements of order 17. In the second part we construct words which have image consisting of the identity and a single equivalence class of elements in $Alt(n)$ for all n for any equivalence class with support size at most 10.

Subjects: **Group Theory (math.GR)**

Cite as: [arXiv:1206.1206](#) [math.GR]

(or [arXiv:1206.1206v1](#) [math.GR] for this version)

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[v1] Wed, 6 Jun 2012 12:57:21 GMT (8kb)

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