Another GMRES please!?

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In October 2013 Arnd Meyer gave a talk in the numerics research seminar at TU Chemnitz discussing general Krylov subspace methods which would employ a preconditioner and two individual inner products. One inner product would be used in the Arnoldi process for the generation of the Krylov subspace's orthonormal basis. The second inner product defines the norm in which the error is minimized in each iteration.

Arnd gave an overview over potential combinations of preconditioners and inner products and suggested new variants of known methods, in particular of the generalized minimal residual method (GMRES). In this presentation we follow up on these ideas and discuss a general version of GMRES from a Hilbert space perspective. The talk will reveal whether or not versions of GMRES have been overlooked and 'another GMRES' is needed.

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