Oppgave 2.33

bjornife

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$S \to T$
$T \to TaTaTbT|TaTbTaT|TbTaTaT|\lambda$

Let A be the language containing twice as many a's as b's.

As every rule either adds two a's and a b or nothing, all strings derived from the grammar must be in A.

Let s be a string in A. Since every non-terminal symbol can be replaced by λ, one can always replace two a's and a b in A with a T. The resulting string, sans the T, will still be in A. Once only one b and two a's remain, substitute with S. This means s can be derived from S, and the proof is complete.