The MU-Puzzle

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MI → MU

    Rule 1: If you possess a string whose last letter is I, add U.

    Rule 2: Suppose you have Mx, you may add Mxx.

    Rule 3: If III occurs in one of the strings, you may make a new string with U in place of III.

    Rule 4: If UU, you can drop it.

    MI

MII Mxx

MIIII Mxx

MIIIIIIII Mxx

MUIIU MIU

∅

    MI → use Mxx rule ∞ times

MIIII...

    I's are always a multiple of 2, thus not divisible by 3.

    MUUU

MIII

    Rule 1 does not affect # of I's.

Rule 2 does not give divisible by 3.

Rule 3 does not change the # of I's.

Rule 4 does not change the # of I's.

    Bottom line, you will never get rid of all of the I's. Thus you cannot get MU from MI.