

## Goal-Plan hierarchy for test *testfr02*

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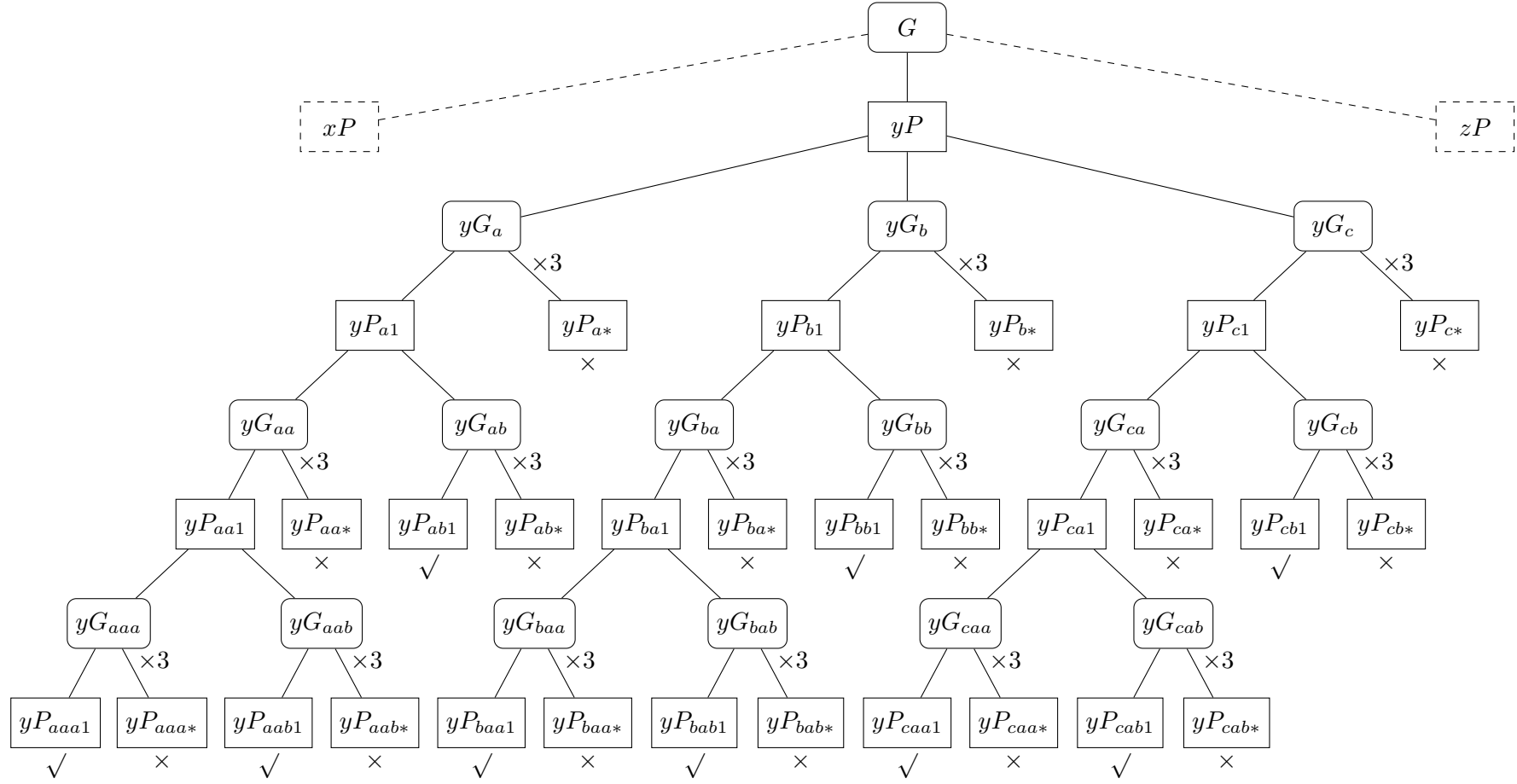


Figure 1: The hierarchy has three top level plans  $xP$ ,  $yP$  and  $zP$  and the total number of worlds is  $2^5$ . All solutions exist in plan  $yP$ . Successful execution trace is of length nine distributed between goals  $yG_a$  and  $yG_c$ . Plans  $xP$  and  $zP$  have the same structure as  $yP$  apart from the fact that the final sub-goals  $xG_{cb}$  and  $zG_{cb}$  have no solutions causing  $xP$  and  $zP$  to always fail. All leaf plans marked  $\times$ , will fail under normal operation but have the side-effect of toggling *one* randomly selected state variable so learning with failure recovery becomes difficult. The aim is to compare how many actions it takes on average for the top level goal  $G$  to succeed — with and without failure recovery.