

# Missionaries and Cannibals

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## 1 Introduction

This problem is similar to the “ferryman” problem (see textbook, Chp. 3.3.5). Three missionaries and three cannibals seek to cross a river. They all start from the same side of the river. They have a boat which can carry up to two people at time. All missionaries and cannibals are able to navigate the boat (no need for a ferryman). If at any time the cannibals out number the missionaries on either side of the bank the cannibals will eat the missionaries! The goal is to bring all of the missionaries and cannibal on the other side of the river.

Formalize the problem as an NuSMV program and add temporal logic specifications to check the existence of a safe solution:

1. All of the missionaries and cannibals cross the river;
2. During the transitions to the goal state no missionary is eaten!