

# MIXED DRINKS – SOLUTION

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Each minipuzzle in this puzzle includes either one or two chalices. The single chalices come with six left-hand and six right-hand clues; after finding enough of the clued words, we conjecture that each word list is alphabetized and contains a 3-letter word, a 5-letter word, and four 6-letter words. These lengths correspond to the number of triangles in the downward-sloping diagonals, which suggests that the words should be entered along the diagonals so that overlapping letters agree, crossword style. In the first section, we produce:

- MIDSIZE CUTLASSES
- IT MAKES TIME FLY
- BRITISH PARTY
- MICHELANGELO AND RAPHAEL, FOR TWO
- BACTERIAL VIRII, INFORMALLY
- BRAZILIAN DANCE

- URUGUAYAN SPONGE CAKE –
- ARMORED CAR COMPANY –
- RECENTLY BOUGHT BY BRINK’S
- IN THE LIMELIGHT –
- VASSALS OF THE KING –
- EASY TARGET IN AN ALLEY? –
- ISRAELI-BORN JEWS –

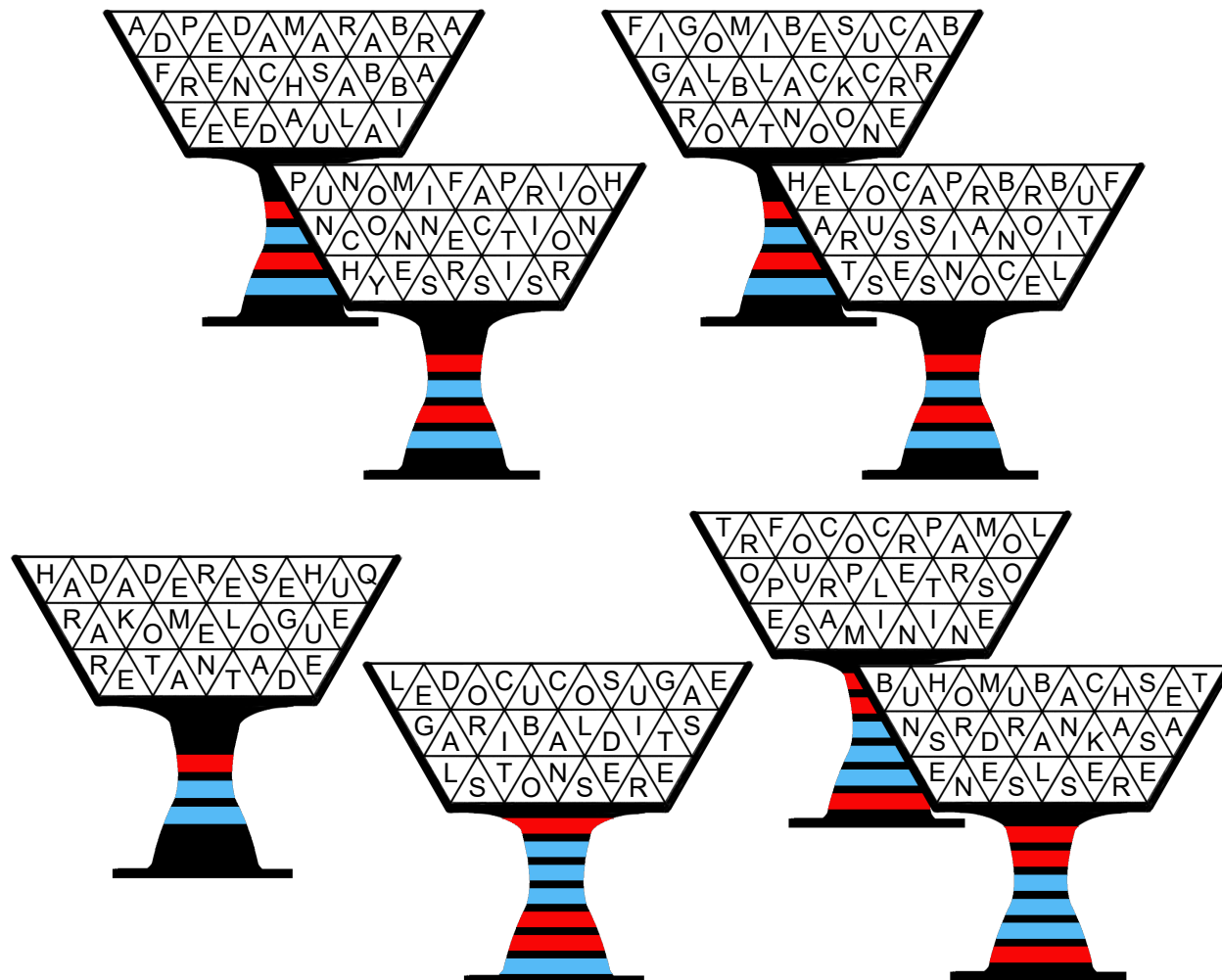
The middle horizontal line in the chalice grid contains as a substring the letters for JAGERBOMB, a mixed drink consisting of just two ingredients: Jagermeister and Red Bull. The lengths of these ingredients match the number of blanks on the labels of the red and blue bottles, and the colored letters extract the letters **jAgerMEisteR** and **redBull**. The colored bands on the chalice’s stem tell us how to riffle these letters into the answer for the minipuzzle, which is **AMBER**.

We now repeat this trick five more times. Half of the minipuzzles include double chalices, which follow the same rules described above except that each diagram comes with twelve alphabetized left-hand and right-hand words, which must be divvied up between the two chalices. The six mixed drinks and their extracts are listed below:

JAGERBOMB	<b>jAgerMEisteR</b> / <b>redBull</b>	AMBER
FRENCH CONNECTION	<b>aMarettO</b> / <b>cOgNac</b>	MOON
BLACK RUSSIAN	<b>kaHLua</b> / <b>vODka</b>	HOLD
RAKOMELO	<b>Tsipouro</b> / <b>HonEy</b>	THE
GARIBALDI	<b>camPaRI</b> / <b>oRANge juIcE</b>	PRAIRIE
PURPLE DRANK	<b>cOugh sYRup</b> / <b>SpriTE</b>	OYSTER

The Amber Moon and Prairie Oyster are similar cocktails, both claimed historically as hangover cures. An Amber Moon consists of whiskey, raw egg, and tabasco, while a Prairie Oyster includes no whiskey (and often contains Worcestershire sauce). By ‘holding’ the Prairie Oyster, we are left with WHISKEY, the answer to this puzzle.

For completeness, completed grid fills for the other five minipuzzles are given below:



## CONSTRUCTION NOTES

We determined early on that White’s puzzle would relate to bartending in some way. The original concept involved a pair of Rows Gardens (a Biergarten and a Rosé Garden, if you will) which, when overlaid, would create mixed drinks out of overlapping words. For example, an overlap in RUM and GINGERBEER would extract to give DARKNSTORMY. The Rows Garden evolved into the triangular-celled crossword in the final puzzle.

The extract AMBER MOON HOLD THE PRAIRIE OYSTER was found early on, as was the extract mechanic using letter ruffling.<sup>1</sup> However, early versions of the puzzle involved extracting the name of the mixed drink out of shaded cells in the chalice; the decision to place the drink in

<sup>1</sup>Although, in our first attempt at construction, RAKOMELO (Tsipouro / HonEy) was given by TORPEDO JUICE (eThyl alcoHol / pinEapple juice), a deadly cocktail made from the 180-proof grain alcohol used in World War II torpedo motors.

the ‘unconstrained’ horizontal came later. The particular shape of the chalice changed many times during this process as well.

Candidate grid fills were found with computer assistance in the span of a week. Since standard crossword-setting programs aren’t designed for the intersection patterns which arise from triangular cells, the grid-filling program was built from scratch.<sup>2</sup>

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<sup>2</sup>The program attempts to create valid fills by adding in downward-right-sloping diagonal entries one at a time, left to right, as a depth-first search. Partial fills which create valid words in the downward-left-sloping diagonals are extended, and the results are pruned based on the scores of the twelve entry words in a large crossword word list.