Crossword Edited by Will Shortz

Got before UA flight started from SFO on Sept 5, 2013 Thursday

There are sixteen correct solutions: in highlighted squares alternatives are just as good M, P, T, D resp.

PUZZLE BY DAMON GULCZYNSKI

ACROSS

1 Belief system founded in China or Maoism
7 Dessert wine . . . also what can fill the square at the crossing of 50-Across and 51-Down P OR T
11 Baseball Hall-of-Famer Roush
14 G.M. navigation system
15 Eins und zwei
16 Negative conjunction
17 Spark
18 ___ shui
19 Shade provider?
20 Relied (on)
21 "The Governator"
23 Explorer John
24 Shot out diffusely or scattered
27 Reds, for short
29 One putting off retirement as long as possible?
31 Bogotá bears
33 Warring, say
34 Not tacitly
38 Pie piece?
40 Emphatic confirmation
41 Brain tickler
42 Gush (over)
45 Critic Richard
46 Game with scouts and miners
49 Three-time Hart Trophy winner
50 Bumbled verbally or stuttered
53 Standard
55 Biblical land
56 Kitchen gadgets or ricers
59 Furthermore
60 'Vette roof option
63 Maupassant's first novel
64 The Tigers of the N.C.A.A.
65 Western tribe
66 Gomez of "Ramona and Beezus"
67 Discernment
68 Comedian Sahl . . . also what can fill the square at the crossing of 1-Across and 1-Down M OR T
69 Downers, in brief

DOWN

1 Work hard or moil?
2 Actress Bancroft
3 Showbiz nominations
4 1986 rock autobiography
5 Glossy fabric
6 TV character who "will never speak unless he has something to say"
7 Sharable PC file
8 Resource in the game Settlers of Catan
9 Lead role in the film "La Cage aux Folles"
10 Scrooge
11 "Return of the Jedi" battle site
12 Watson's creator
13 Titular judge played by Stallone
22 Nervous one?
24 ___ Pepper
25 Fraternity letter or phi
26 Bar fig.
27 N.Y.S.E. listing . . . also what can fill the square at the crossing of 24-Across and 25-Down C OR P
28 Golfer Aoki
30 Sir ___ Holm
32 Rest of the afternoon
35 Roulette choice
36 One at a keyboard
37 1841 rebellion leader . . . also what can fill the square at the crossing of 56-Across and 56-Down D OR R
39 Blind jazz piano virtuoso
40 ___ Group (Dutch banking giant)
42 Word repeated before "away"
43 Put away
44 Not single
47 Have as a tenant
48 View sharer
50 Union wage
51 Flowering plant or tansy
52 Excessive
54 What's on the fast track?
56 Sign of neglect or dual
57 Milieu of 49-Across
58 Vast expanses
61 The Who's "Love, Reign ___ Me"
62 Sea-Tac setting: Abbr.

9/5/13 (No. 0905)

ANSWER TO PREVIOUS PUZZLE

Why Damon Gulczynski's puzzle has 2^4 solutions is clear from my scribblings, so I'll move on to *more weighty things.* The ***graph of a crossword*** G has as its *vertices* all white squares, and as *edges* all pairs of these with a common side. Usually (but not always) each clue is for a maximal horizontal or vertical string of consecutive white squares, which contributes one less edge to G, so we can easily compute the Euler characteristic $\chi(G)$ of G. And almost always (but not in ਸ਼ਬਦ ਪਹੇਲੀ) this graph is connected, so its first Betti number $b_1(G) = 1 - \chi(G)$. In U.S. grids there may be some quadruples of white squares with a common corner : for each such corner we should (imho) attach a *square* 2-*cell* to G and consider instead this **2-*dimensional cell complex*** K, whose $b_1(K)$ is that much smaller. And more generally, we can look at any **n-*dimensional cube subdivided in smaller equal* n-*cubes***, some black the others white, and consider then the Poincaré dual cell complex K of the open white part of any such "crossword" : ***is the homotopy type of any polyhedron realized by such a cubical cell complex*?** Also I recall that cubical cell complexes were there in Serre's Fields Medal winning work on spectral sequences of fibrations, and are there once again in the recent and striking results on closed hyperbolic 3-manifolds ...