

## SENIOR On-Sets® Variations 2017-18

SPECIAL RULE: The following three variations are in effect for *all* shakes.

1. Multiple Operations Any operation sign not in Forbidden may be used many times in any Solution (Set-Name or Restriction or both).
  2. U and  $\cap$  Interchangeable Any  $\cup$  may represent  $\cup$  or  $\cap$ , and any  $\cap$  may represent  $\cap$  or  $\cup$ .
  3. V and  $\wedge$  Interchangeable Any  $\vee$  may represent  $\vee$  or  $\wedge$ , and any  $\wedge$  may represent  $\wedge$  or  $\vee$ .
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4. Required Cube The Solution must contain a \_\_\_ cube. The player selecting this variation specifies which non-digit symbol from the Resources fills the blank in the previous sentence.
  5. Wild Cube The \_\_\_ cube may represent any symbol on the cubes except a digit. The \_\_\_ cube must stand for the same symbol everywhere it occurs in the Solution. The player selecting this variation specifies which cube from the Resources is wild. The wild cube may not be =,  $\subset$ , or a digit. Each Solution-writer must specify in writing the interpretation of the wild cube if it stands for anything other than itself in his Solution.
  6. Two Operations The Set-Name of each Solution must contain at least two operation symbols. The operation symbols are  $\cup$ ,  $\cap$ ,  $-$ , and  $'$ .
  7. Shift from Permitted On your turn, you may transfer a color or operation cube in Permitted to either Required or Forbidden. This move takes the place of your regular move.
  8. No Null Restrictions Each Restriction must remove at least one card from the Universe. In a chain Restriction, this variation is satisfied if any part of the Restriction removes a card.
  9. Absolute Value Any upside-down cube(s) in the Goal may be interpreted as right-side-up by a Solution-writer.
  10. Double Set Each card in the Universe that is contained in the \_\_\_ set will count double for all Solutions. The player selecting this variation specifies which non-empty set of cards *that does not equal the Universe* counts double. The set must be named using an expression consisting of *at most four* symbols (not counting grouping symbols).
  11. Required/Forbidden Card The player selecting this variation either specifies one card in the Universe which must be in the Set-Name of any Solution or specifies one card in the Universe which must *not* be in the Set-Name of any Solution.
  12. Blank Card Wild Each Solution-writer must specify in writing which colors, if any, are on the blank card.
  13. Symmetric Difference The  $-$  symbol means “symmetric difference;” that is,  $A - B$  equals  $(A - B) \cup (B - A)$ , where these last two  $-$  signs mean set subtraction.
  14. Two Solutions Each Solution-writer must write two Solutions; the set named by the second Solution must contain at least one card that is not in the set named by the first Solution.

**DO NOT MARK THIS SHEET!**