This report uses the star data from *Campaign Operations* to calculate the orbital distance of every orbital slot by star type and then to determine whether that orbital slot is within the habitable life zone of the star. We first do this calculation for main sequence (V) stars.

The results (Figure 1) indicate that every star type has at least one slot in the life zone except for M6V and M9V planets. Looking closer it appears that the end of the life zone for M9V is 0.031AU and the first slot is at 0.04AU. For M6V planets the end of the life zone is 0.079AU and the first slot is 0.08AU. So, we could probably hack either the end of the life zone or the position of the first slot here to make sure we get a habitable planet in those systems.

We also considered the problem of non-main sequence (V) stars. We don't have a full table for these star types and they won't be generated randomly, but there are already canon examples (i.e. FASAstronomy). *Campaign Operations* has a simple method of dealing with these cases:

> Because of this, stars under these rules are assumed to be main sequence stars by default. However, BattleTech has placed habitable worlds around stars of different sizes, particularly giant stars (size class IV to Ia). A star system built around a giant star multiplies the Luminosity by a factor of 4 over the value listed in the Primary Stats Table, doubles the inner and outer radii of the life zone, and reduces the habitability modifier by 2.

Figure 2, applies those changes and shows where the habitable life zone will be. Interestingly, we actually do better here, with more slots in the habitable zone and no stars without a life zone.

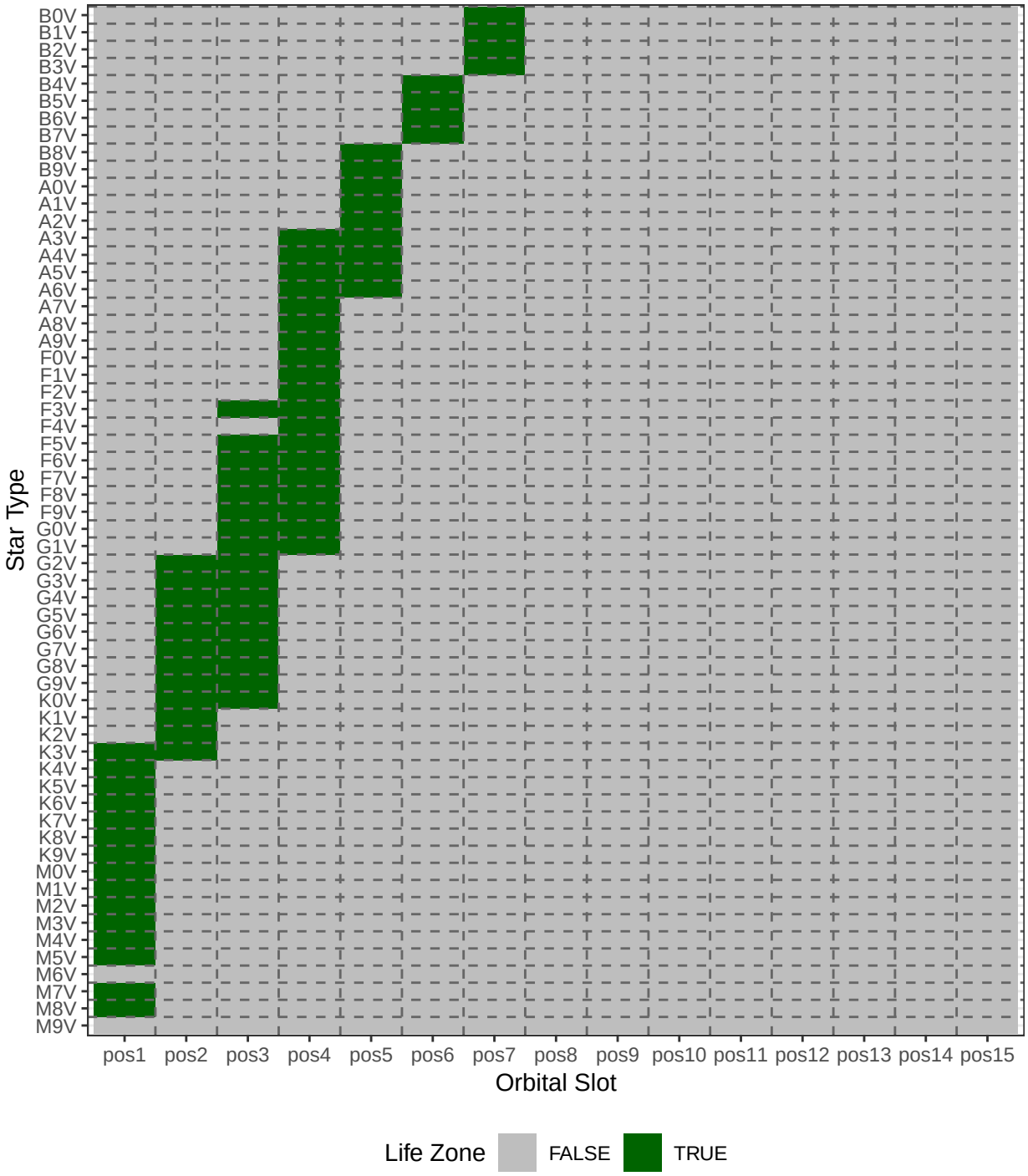

Figure 1: Indicator of whether a given orbital slot is within the life zone by star type

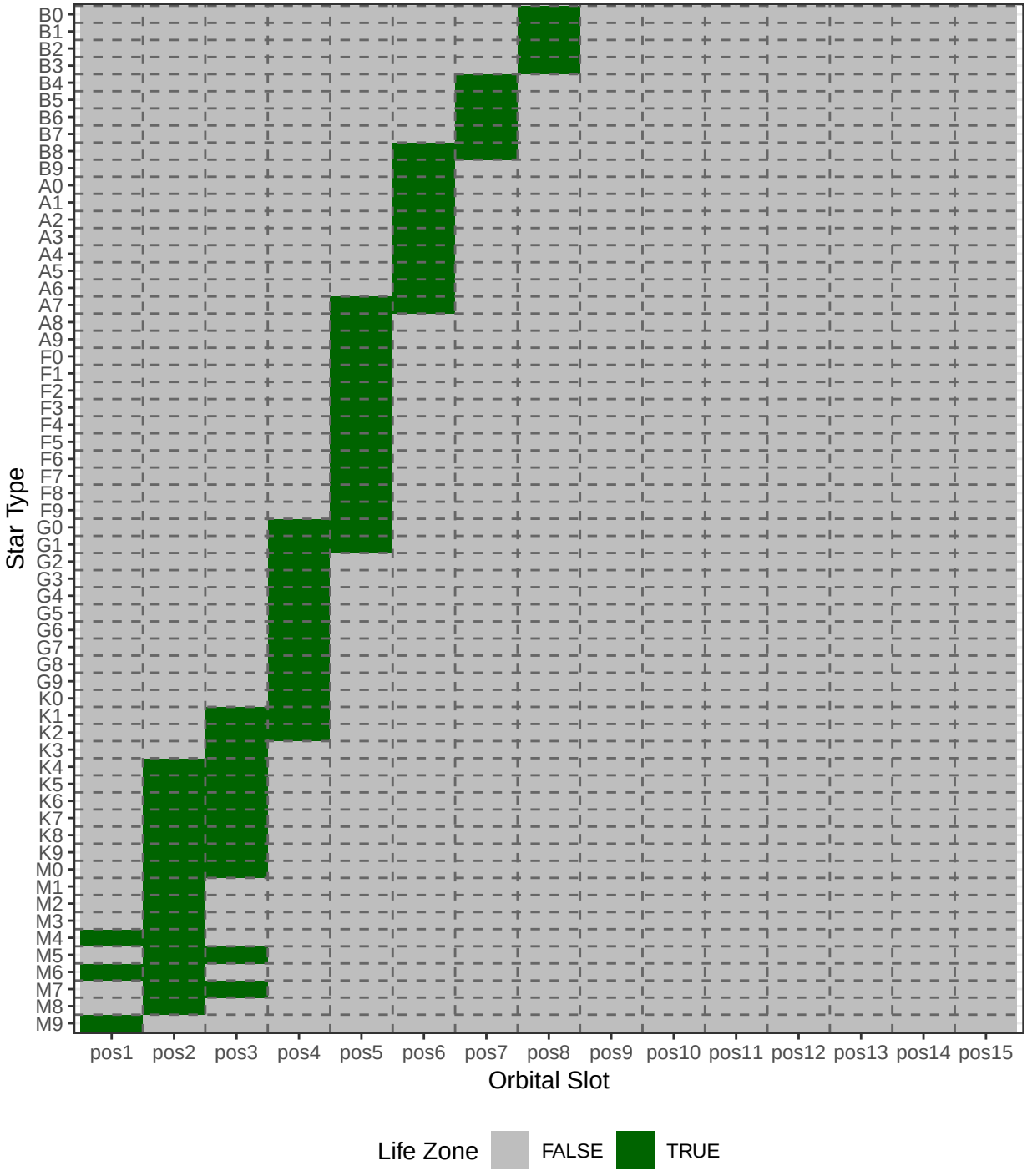

Figure 2: Indicator of whether a given orbital slot is within the life zone by star type assuming non-main sequence star