The title seems to defy logic because it implies only a three note structure. The truth is that any note of the triad can be duplicated in another octave and the chord can still be referred to as a triad. (A note that is an octave higher in pitch is exactly twice as fast in its vibration frequency.)

Duplicating notes in other octaves adds some density to the chord but does not change the function of the chord to any great degree. When we play rhythm guitar, we are generally looking to produce a relatively "fat" sound to accompany the melody, so most of the rhythm guitar chords will be of the "larger variety." On the other hand, when we are simply playing a harmonized solo, we can often restrict the chords to smaller versions so the melody, played as the highest note in the chord, will not be buried.

The larger forms of the triad can be in any inversion and the inversion type is still decided by the lowest note. (bass note) Chords which span more than an octave a generally called "open voicing."



The above staff shows four forms of the Am triad in Root Position. (root in the bass)

Any note of the chord can be duplicated but generally, it is best to duplicate the Root or the 5th. The 3rd of the chord is the colour note of the chord so a duplicated third can be a bit overpowering.

The Root Position "G" chord is used to demonstrate this issue in guitar chord fingerings.



Guitar players generally dismiss all of this information as being unimportant.