FUNDAMENTAL/ESSENTIAL FINDINGS ON AMBISONICS

1. If we use an arrangement of 3 figure-of-eight microphones (say for 1st order) or a tetrahedral microphone (then we would require to convert from A format to B format), then it is less probable that we get omnidirectional degeneration.
2. **Quality of ambisonics** depends on the **number of channels (the order)** we are using.
3. The **number of (velocity) microphones required** to record spatial audio in B-Format is directly proportional to the order of ambisonic B format.

**Example:** For 1st order, we would require 3 Figure-of-eight mics (for channels X, Y, Z) and 1 cardioid mic (for W).

1. It is **very difficult to get directional data using normal pressure mics**. Omnidirectional degeneration with normal pressure mics is highly probable due to 2 reasons:
2. As they are pressure mics and not velocity mics, they need to be kept some distance apart from each other to (atleast) get some directional effect, due to which omnidirectional degeneration occurs.
3. Pressure mics don’t behave like velocity mics and are more prone to this degeneration effect.
4. **Important Note: It is very important to know that, information within a single channel of a B-format is the difference between waves coming from opposite directions and are not the actual waves coming from single direction.**

**For Example:**

**X channel inside B format has difference between sound coming from front and back of the listener.**

**Y channel has difference between left and right sounds.**

**Z channel has difference between top and bottom.**

**So, X does not correspond to just the front sound or just the back sound but it is encoded as difference between front and back.**