

## Musical Objects and Corresponding Dimensions

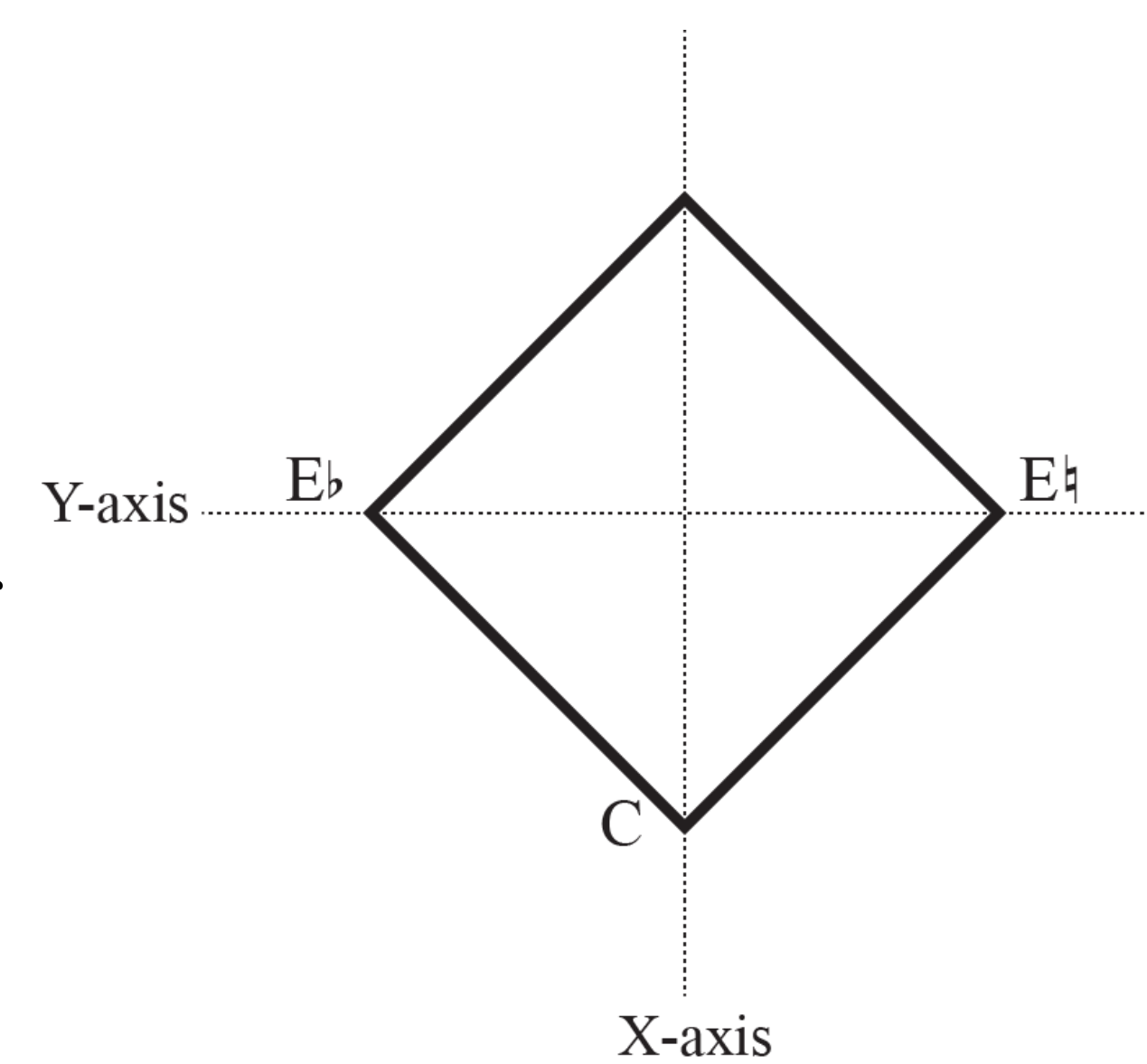
### One-Dimensional Musical Object

- The coordinate of the X dimension is the position of the fundamental tone
- This fundamental tone can generate one consonant triad
- No rotations are possible



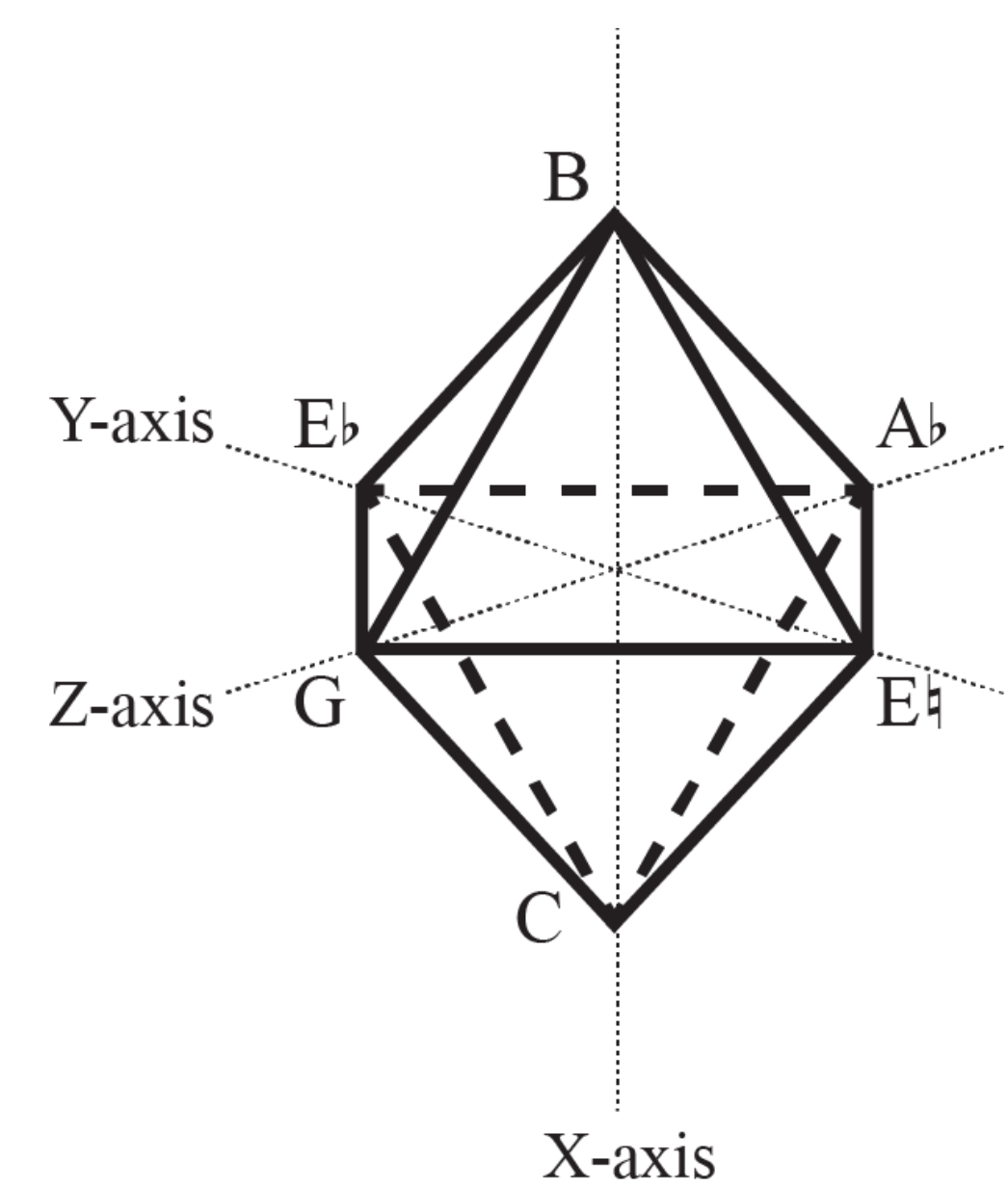
### Two-Dimensional Musical Object

- The coordinate of the Y dimension is the position of the third
- A 2-D MO encompasses both the major and minor thirds
- Can be composed out through a Y rotation



### Three-Dimensional Musical Object

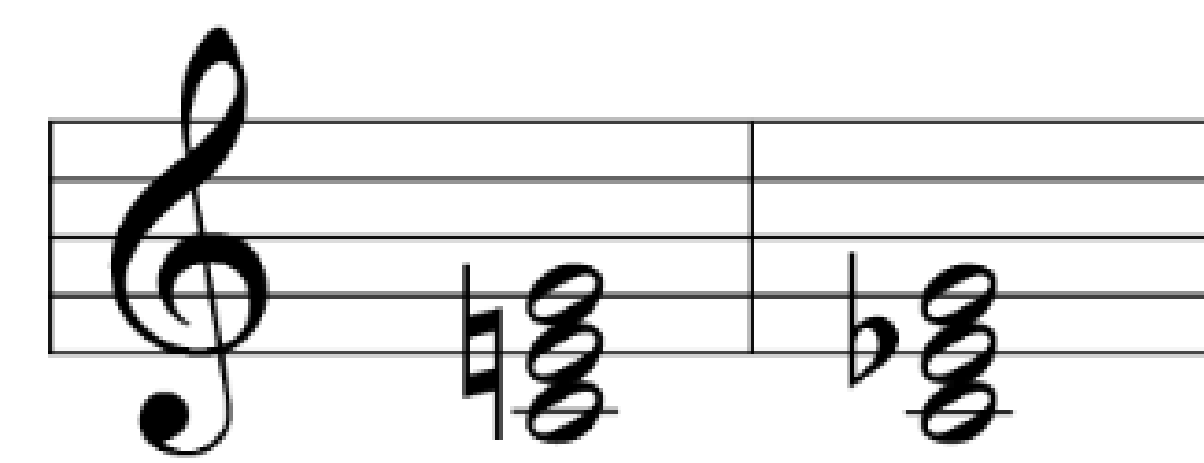
- The coordinate of the Z dimension is the position of the fifth
- A 3-D MO encompasses 8 triads; 6 from the hexatonic cycle and 2 augmented triads
- Can be composed out through an X, Y, or Z rotation



## Perception of Consonance and Dissonance

### One-Dimensional Musical Space

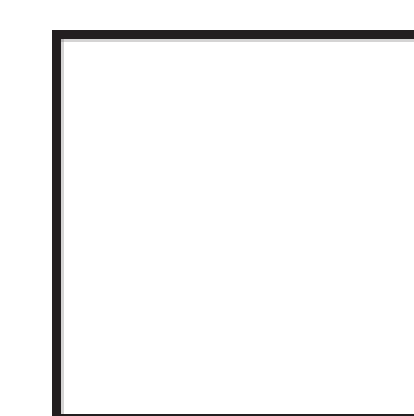
#### 1-D Musical Objects



#### Consonant

### Two-Dimensional Visual Space

#### 2-D Square

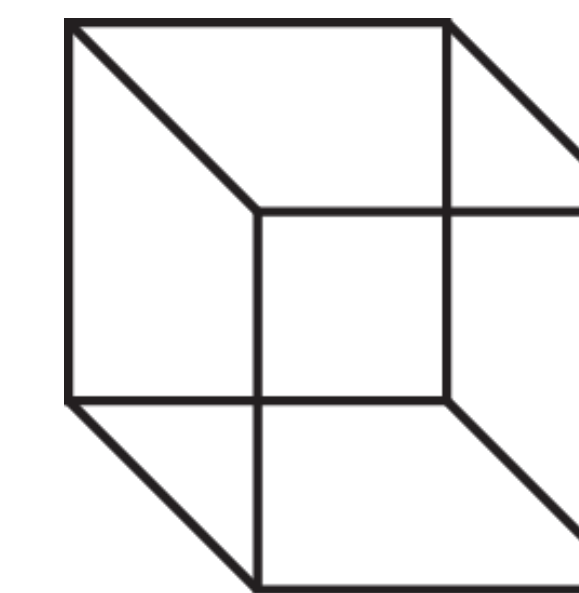


#### Dissonant

#### 2-D Musical Object



#### 3-D Cube

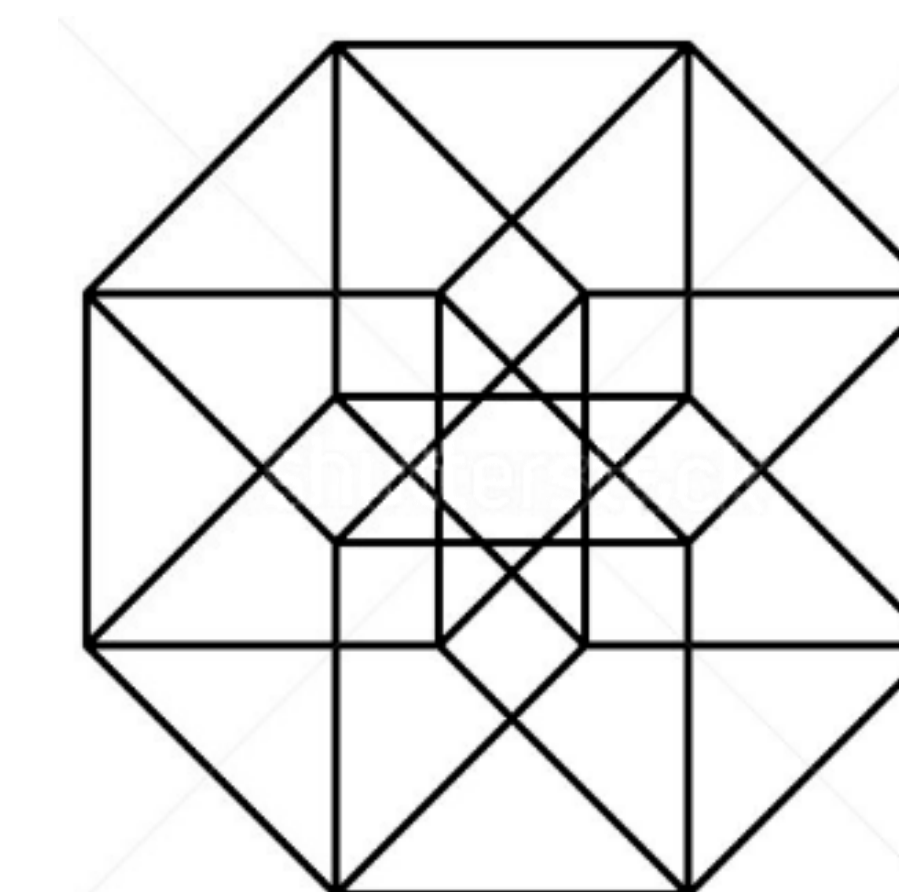


#### More Dissonant

#### 3-D Musical Object



#### 4-D Hypercube



## Rotating Multidimensional Musical Objects in Mahler's Seventh Symphony

### 2-D Tonic Object, Second Movement, mm. 114-121

### 3-D Tonic Object, First Movement, mm. 284-288

## Conclusion

Traditional Schenkerian analysis is typically limited to the triad as the fundamental element of composition, largely because musical objects are assumed to be confined within one dimension of musical space. Works that challenge this limitation are forced into models that compromise their structural integrity. Multidimensional musical objects can provide a way for the analyst to trace more accurately middleground and background unfoldings that would otherwise be misinterpreted in function and voice leading.