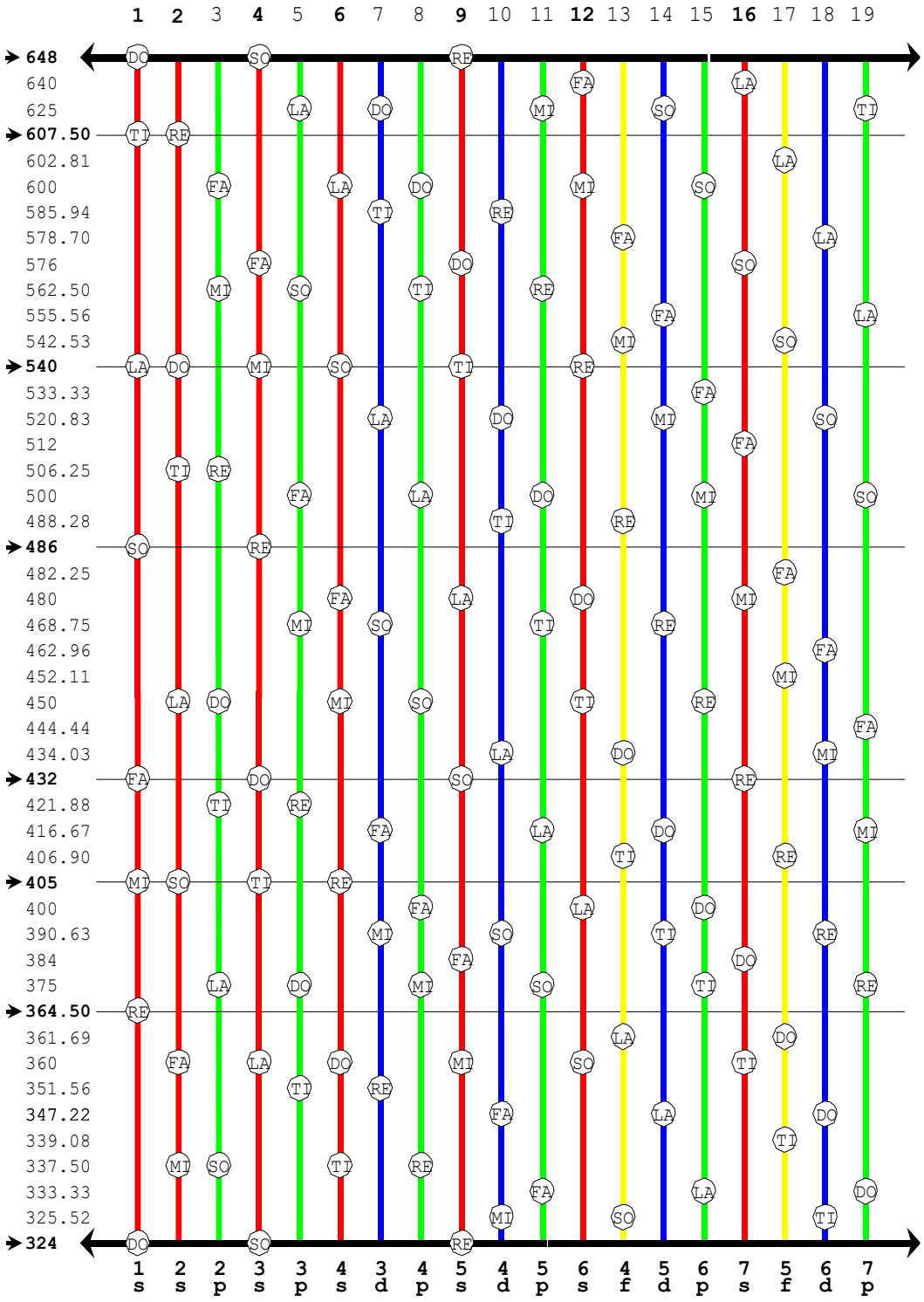Chapter 6 - Cosmic color 19—bottom