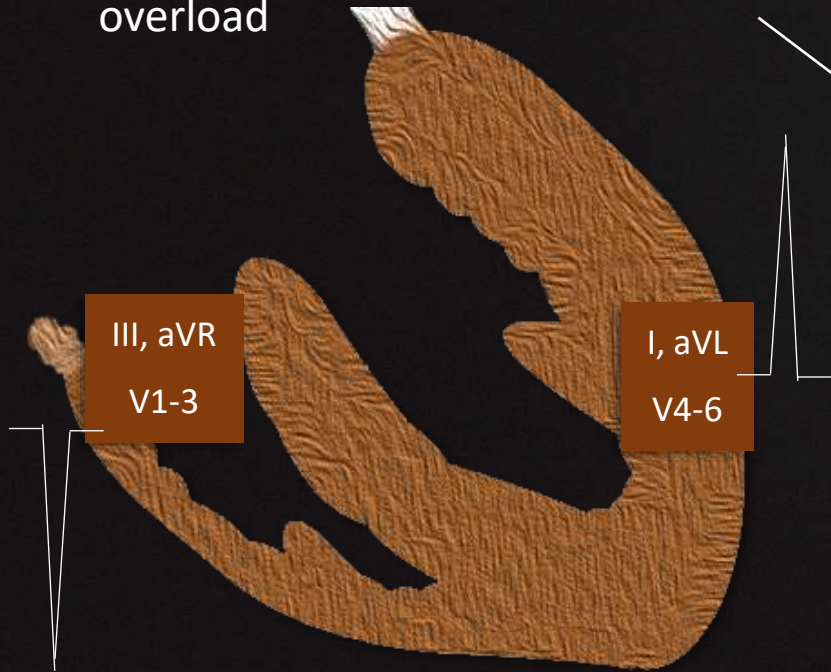

ECG Criteria

Left Ventricular Hypertrophy (LVH)



Left ventricle hypertrophies in response to pressure overload



Voltage criteria

Left ventricular mass is increased, and net increased voltage on the left side



↑ R-wave amplitude in the Left-sided ECG leads & ↑ S-wave depth in Right-sided leads

Non Voltage criteria

Prolonged Depolarization



↑ R-wave peak time (RWPT)

Delayed Repolarization



ST and T-wave abnormalities in Lateral leads

Both Voltage- & Non-voltage
criteria



Voltage criteria

Left ventricular mass is increased, and net
increased voltage on the left side



↑ R-wave amplitude in the Left-sided ECG
leads & ↑ S-wave depth in Right-sided
leads

Non Voltage criteria

Prolonged Depolarization



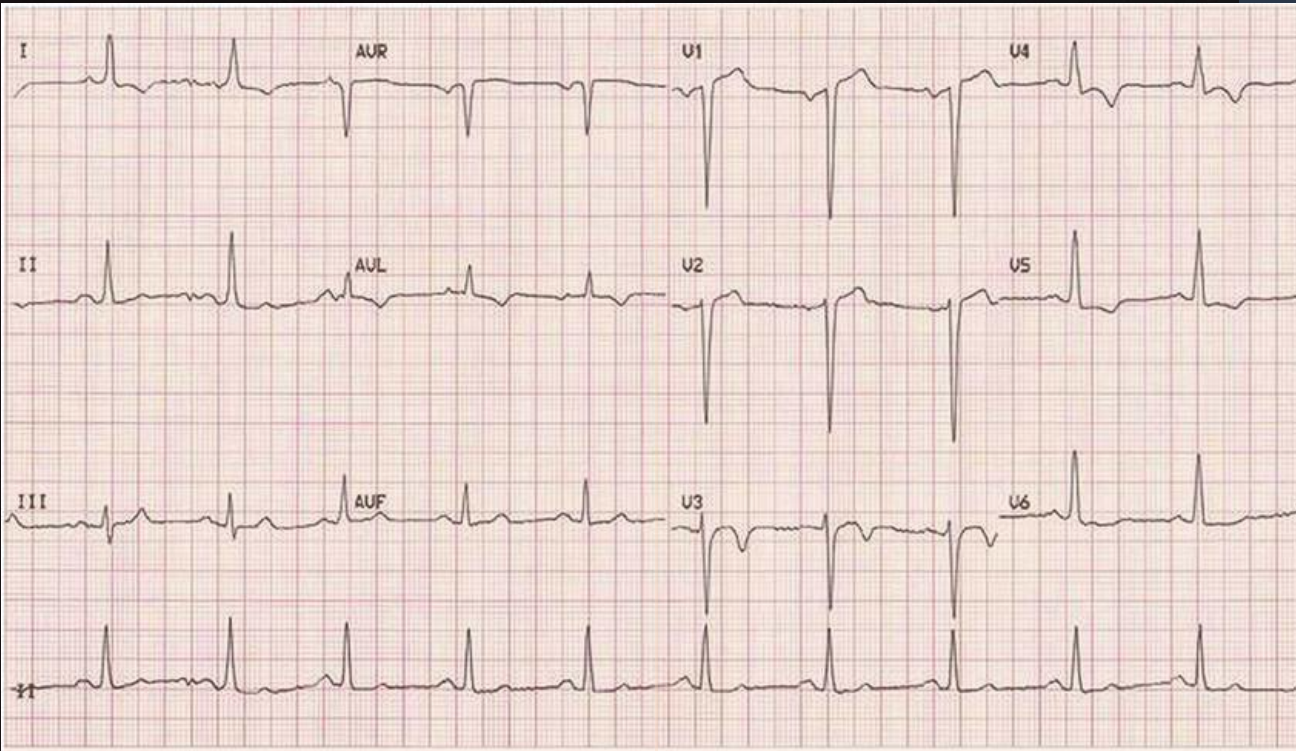
↑ R-wave peak time (RWPT)

Delayed Repolarization



ST and T-wave abnormalities
in Lateral leads

Voltage criteria



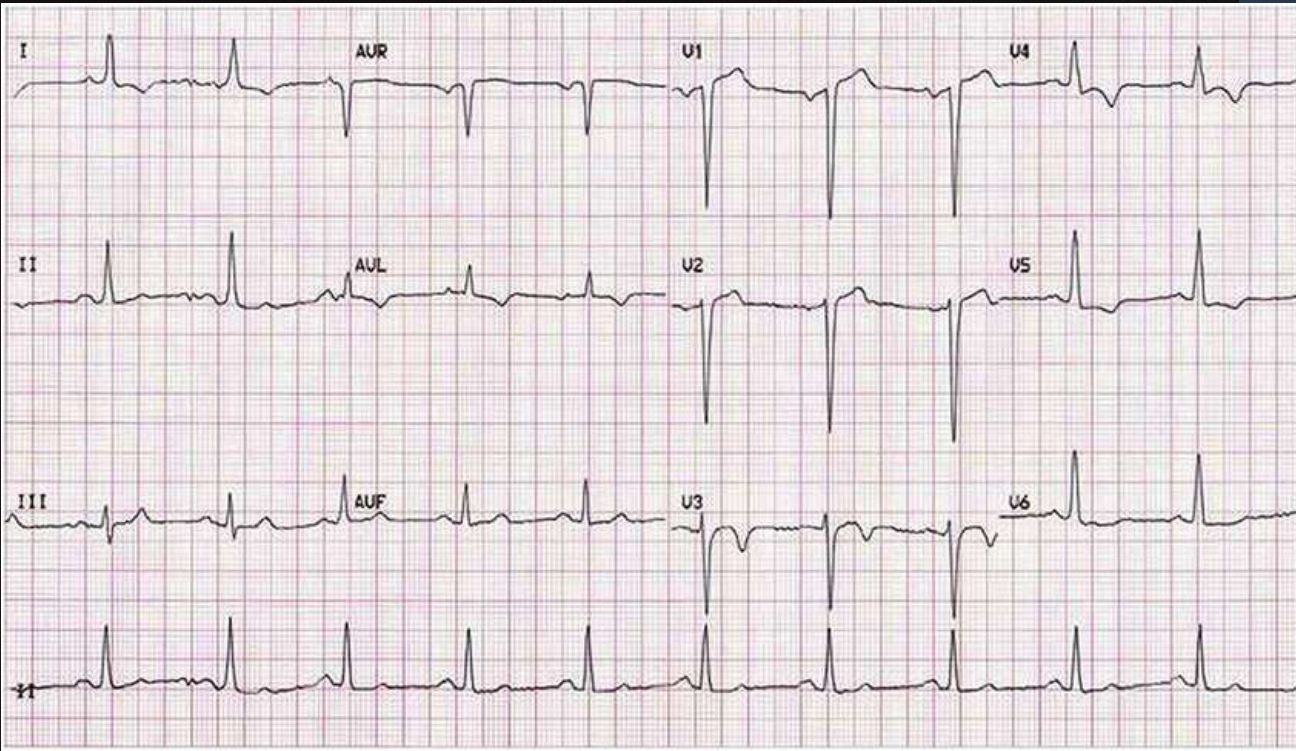
Precordial Leads

1. Sokolov-Lyon Criteria: S wave in V1 + R wave in V5/V6 > 35 mm
2. R-wave in V4, V5 or V6 > 26 mm
3. Largest R-wave + largest S-wave in precordial leads > 45 mm

Limb Leads

1. R-wave in lead I, plus S-wave in lead III > 25 mm
2. R-wave in aVL is > 11 mm
3. R-wave in aVF > 20 mm in amplitude
4. S-wave in aVR > 14 mm

Non-Voltage criteria

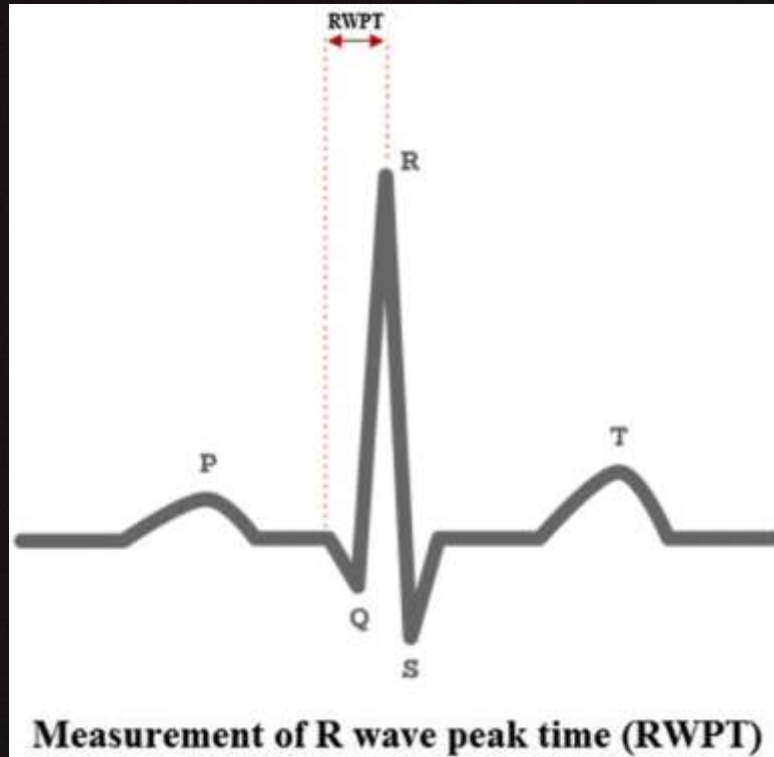


Prolonged Depolarization

↑ R-wave peak time > 50 ms in leads V5-6

Delayed Repolarization

Non-Voltage criteria

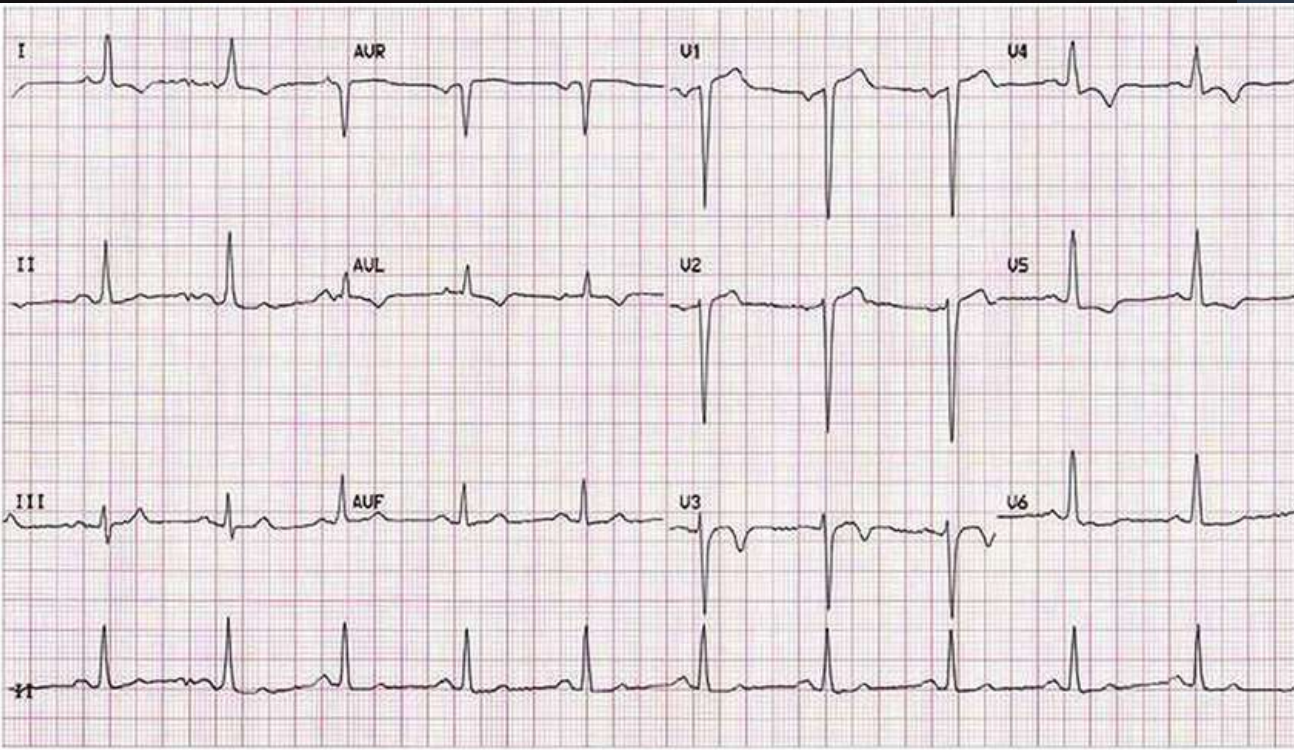


Prolonged Depolarization

- **R-wave peak time (RWPT)** - Time from onset of earliest Q-wave/R-wave to peak of the R-wave in lateral leads
- Represents time taken for depolarization to spread from the endocardial to epicardial surface of left ventricle
- RWPT Prolonged if > 45 ms

Delayed Repolarization

Non-Voltage criteria



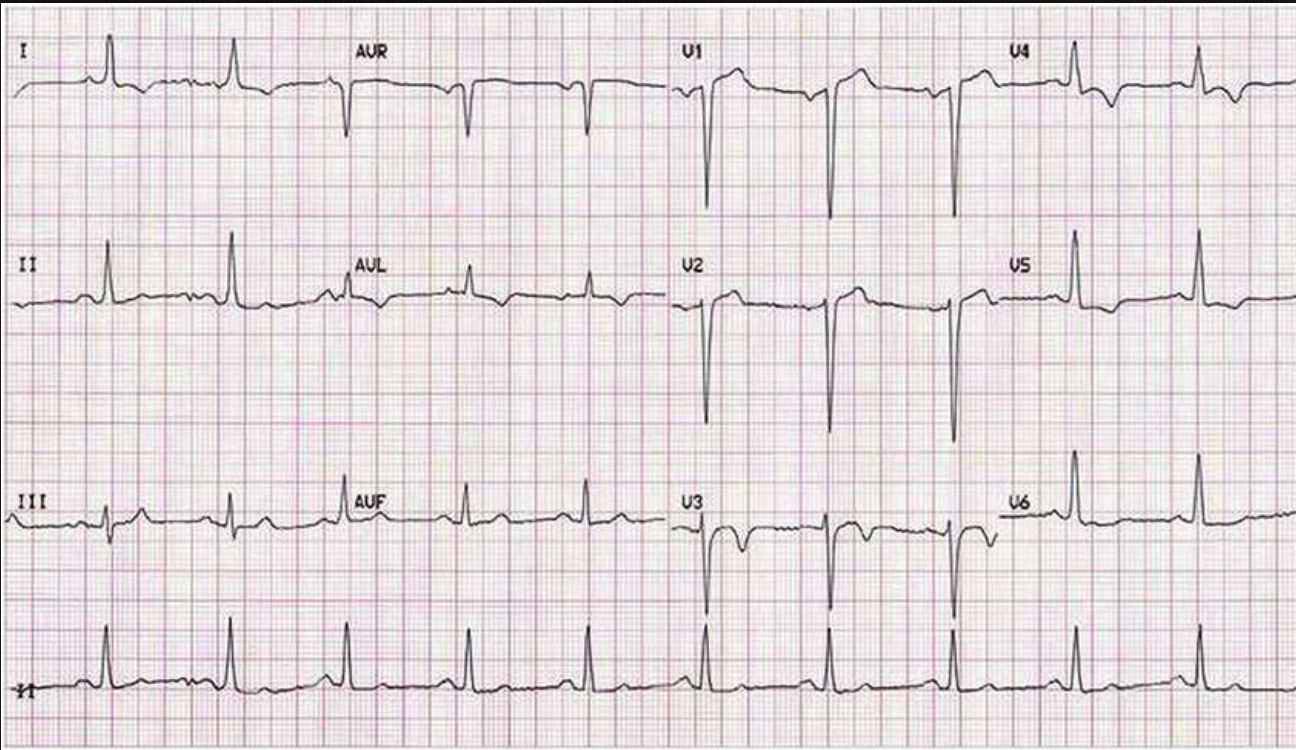
Prolonged Depolarization

↑ R-wave peak time > 50 ms in leads V5-6

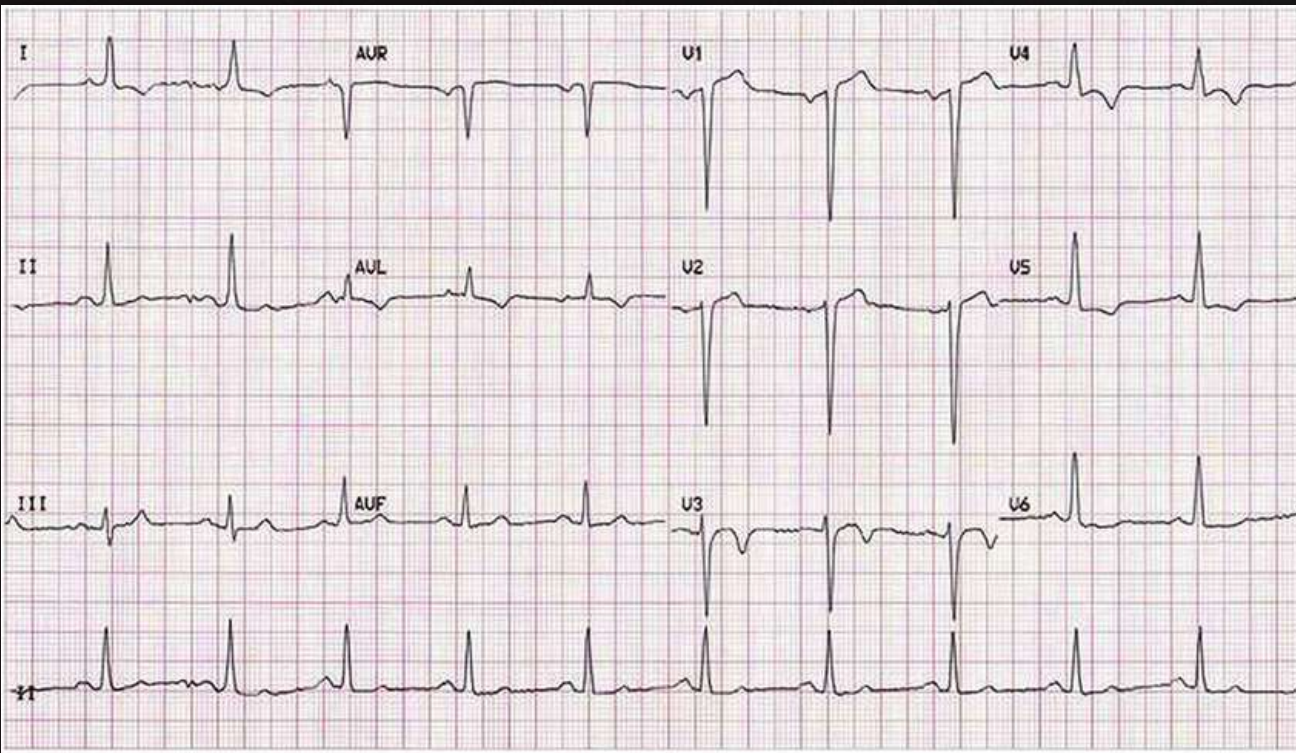
Delayed Repolarization

LV 'Strain' pattern - ST segment depression & T-wave inversion in Left sided chest leads

Additional ECG Features

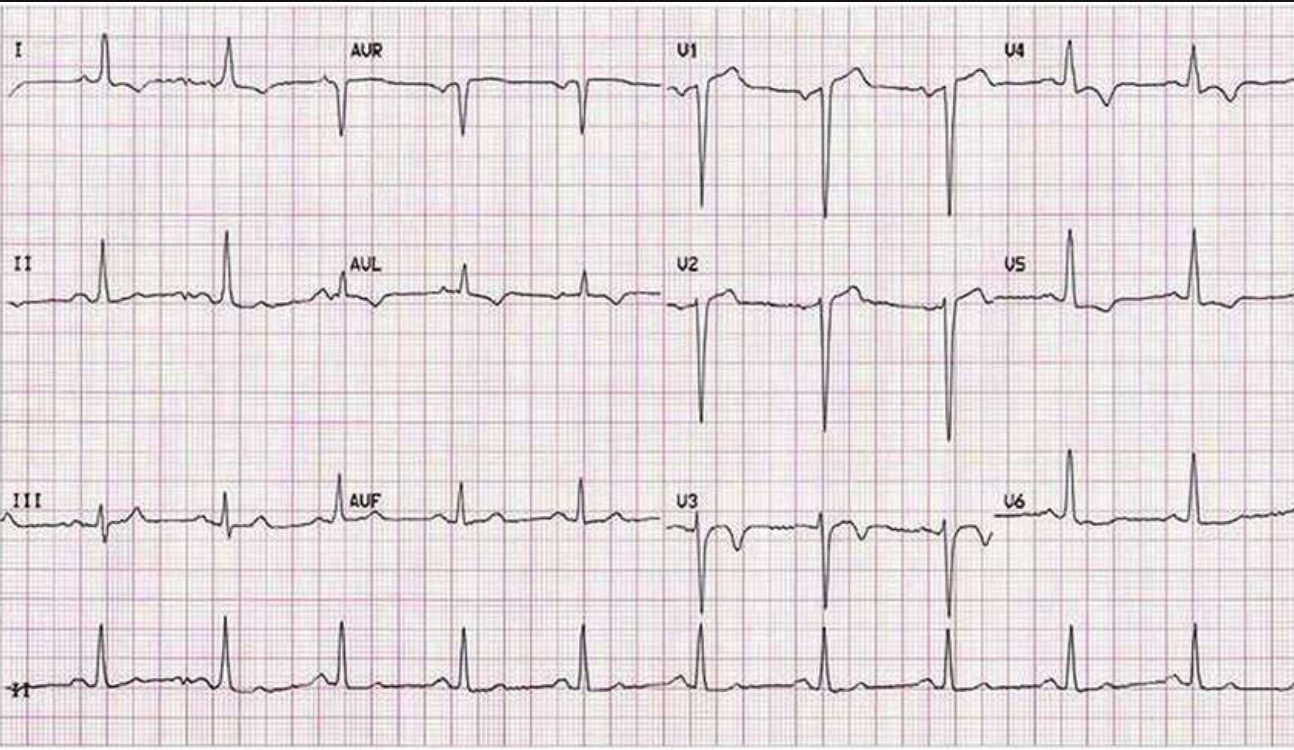


1. Left atrial enlargement
2. Left Axis deviation
3. ST elevation in the right precordial leads – ST discordant to deep S-waves in V1-3
4. Prominent U-waves (proportional to increased QRS amplitude)



Important

- Voltage criteria alone are not diagnostic of LVH
- ECG Criteria – Not sensitive for LVH



Causes of LVH

- Hypertension
- Aortic stenosis
- Hypertrophic cardiomyopathy (HCM)
- Aortic Regurgitation (AR)
- Mitral Regurgitation (MR)
- Coarctation of Aorta

Last Second **Medicine**

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