CSD1130
Game Implementation Techniques

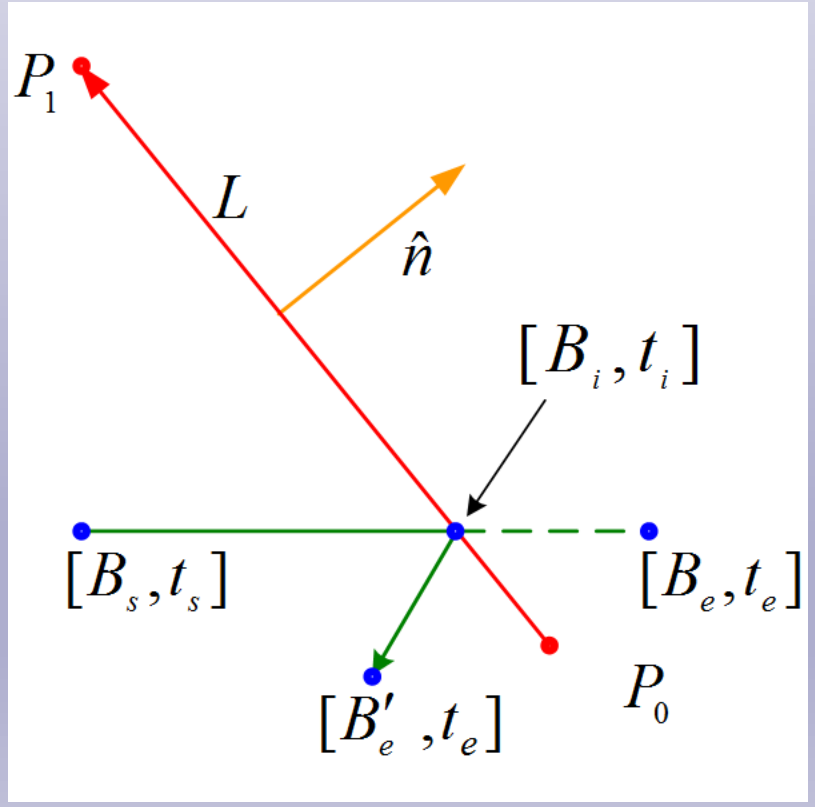
Lecture 17

Overview

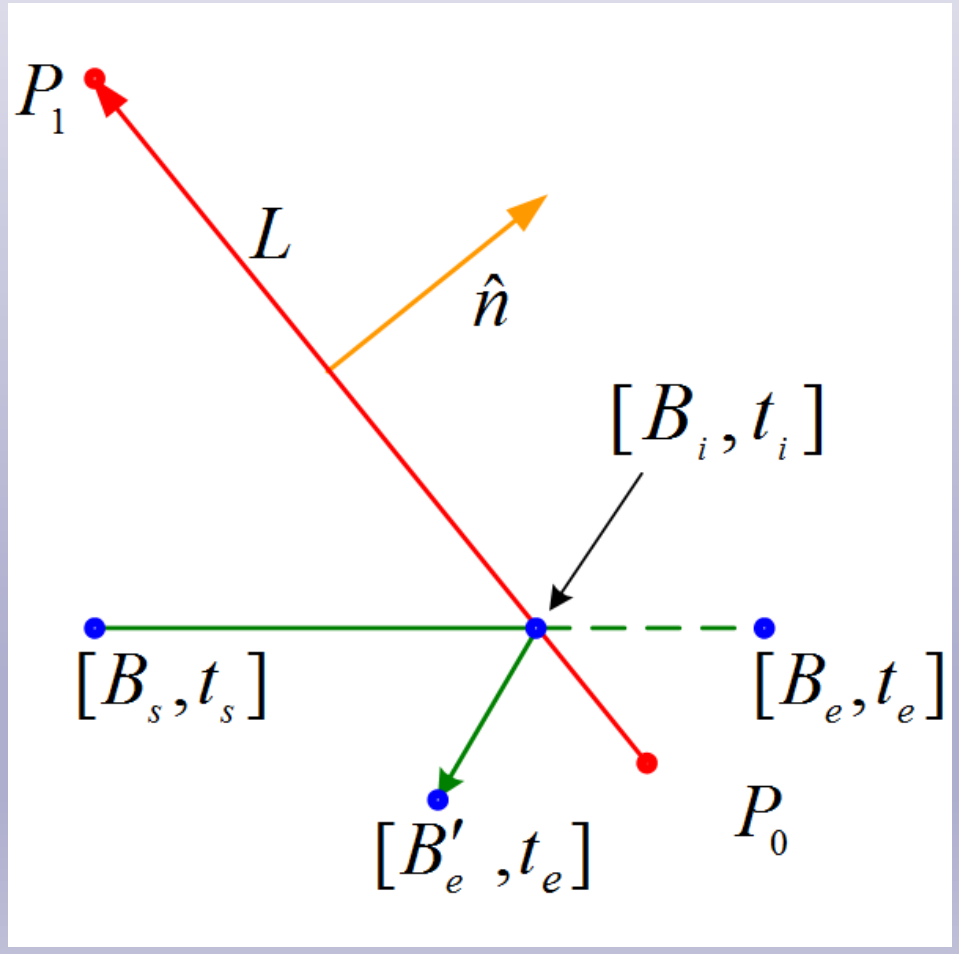
- Reflection – Animated Point to Line

Position of Ball After Collision (1/8)

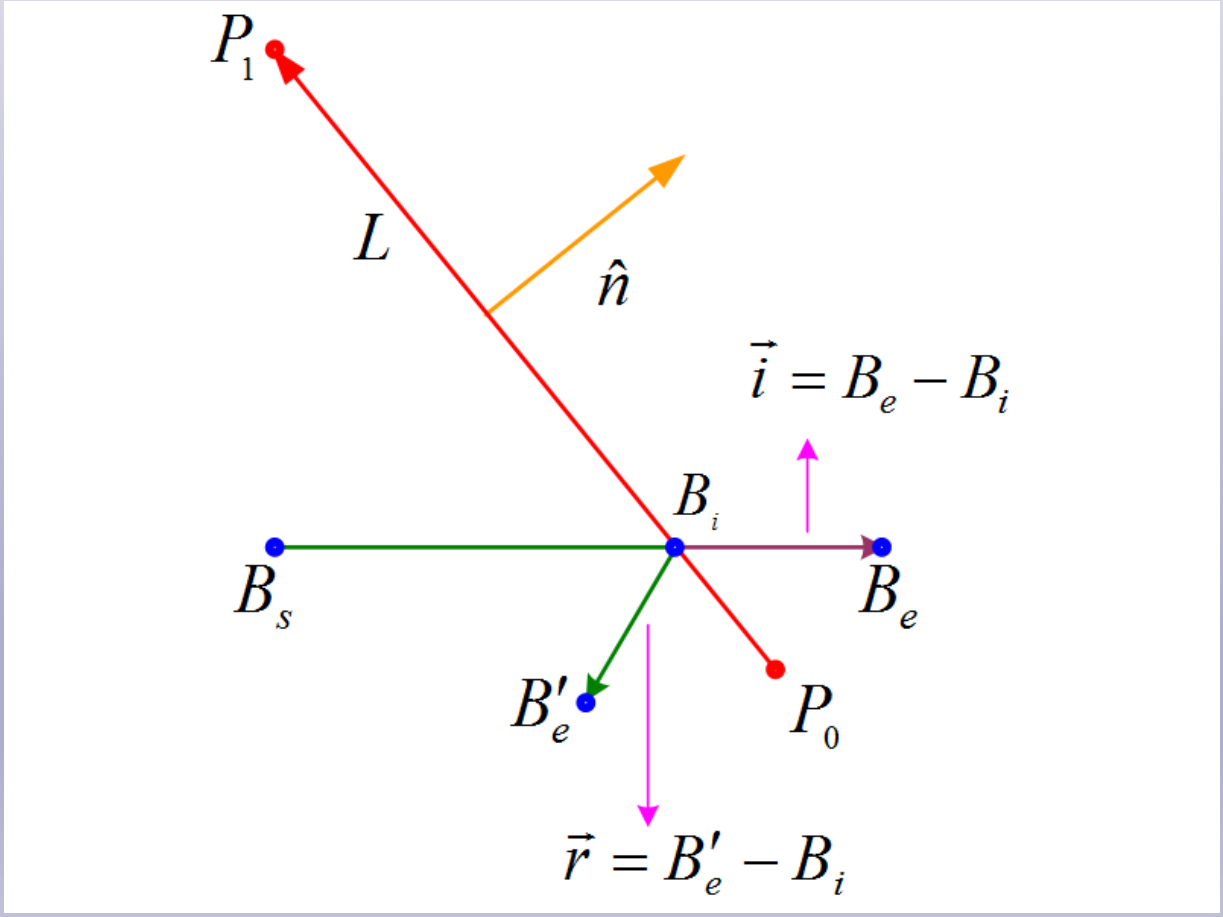
- Assuming elastic collision



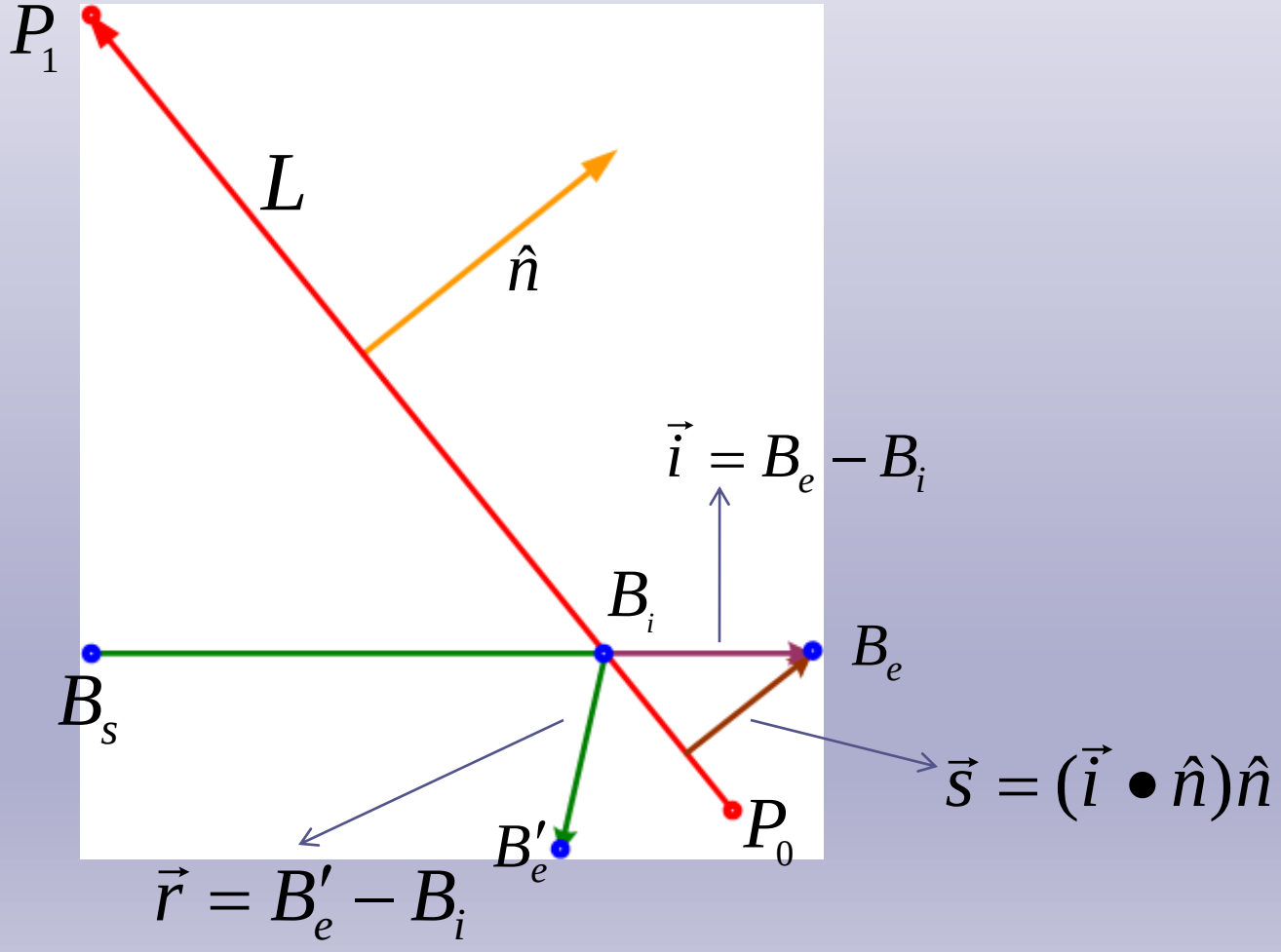
Position of Ball After Collision (2/8)



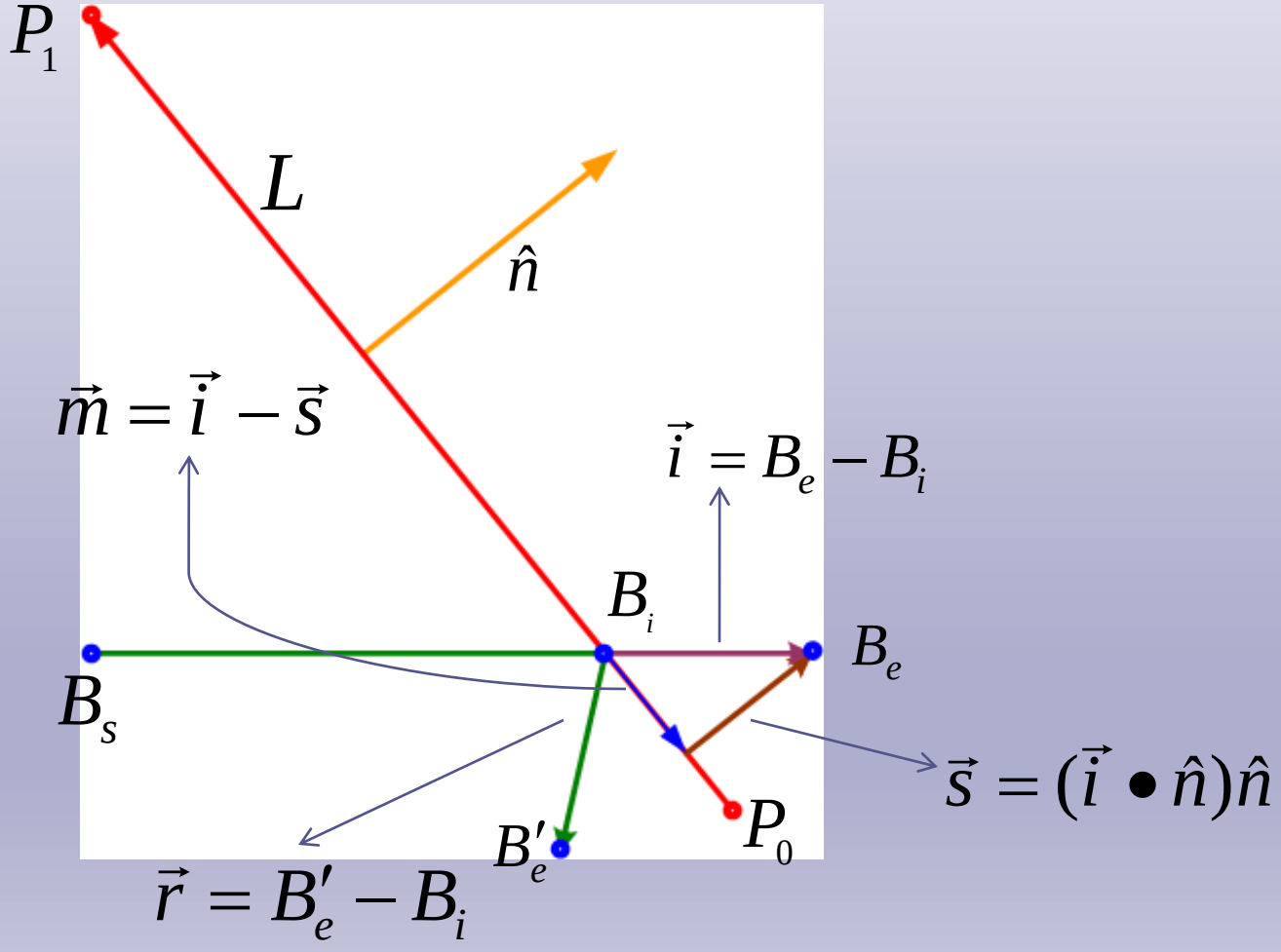
Position of Ball After Collision (3/8)



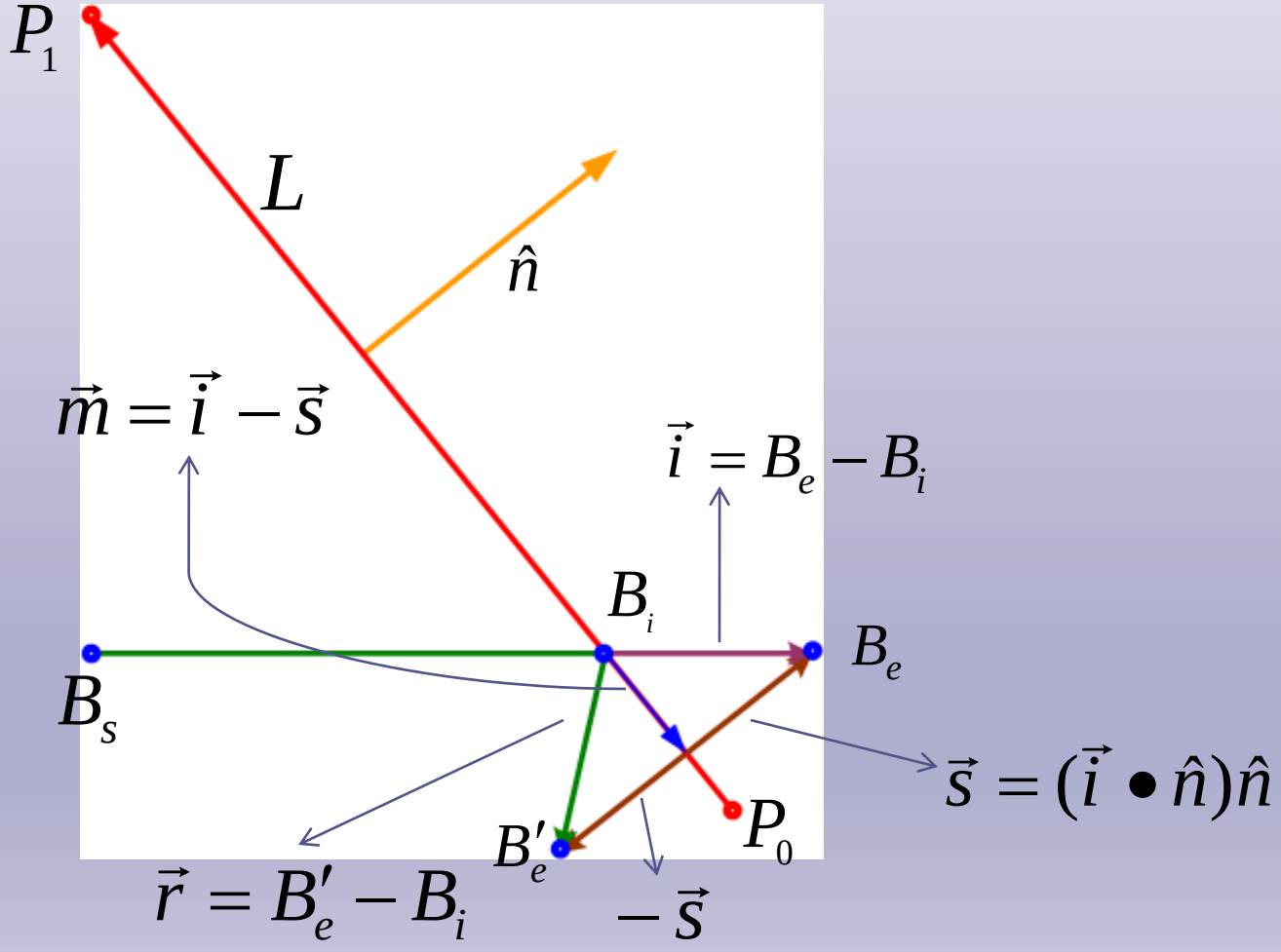
Position of Ball After Collision (4/8)



Position of Ball After Collision (5/8)



Position of Ball After Collision (6/8)



Position of Ball After Collision (7/8)

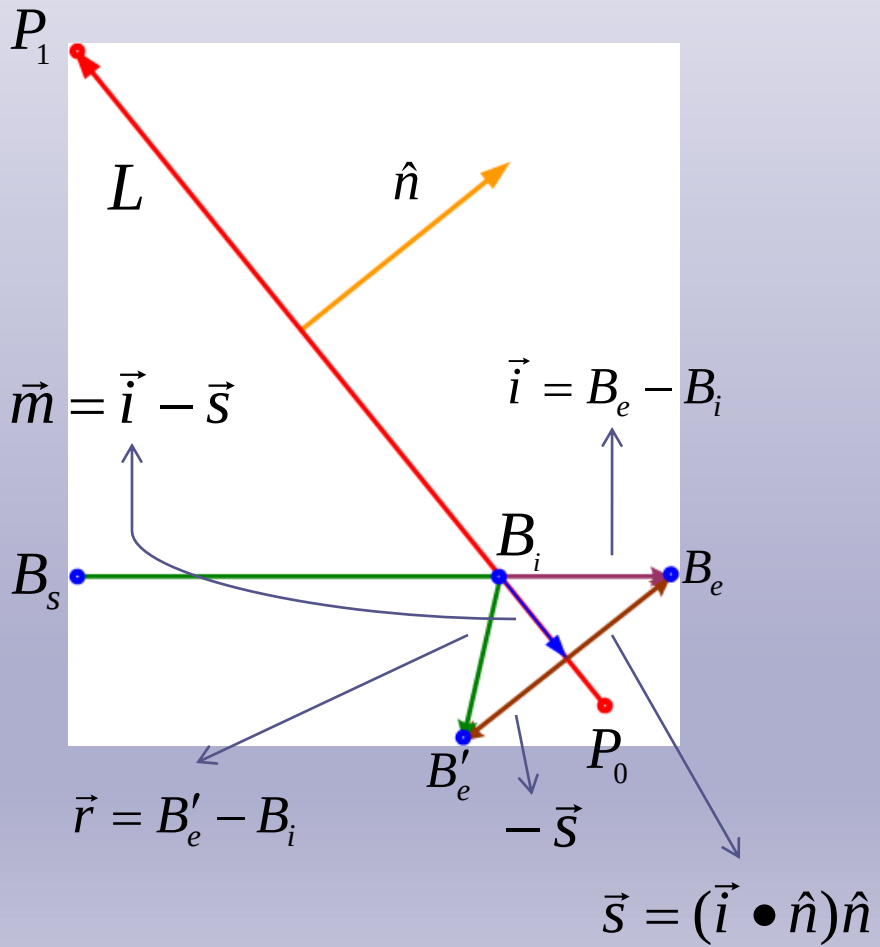
$$\vec{r} = \vec{m} - \vec{s}$$

$$\Rightarrow \vec{r} = \vec{i} - 2\vec{s}$$

$$\Rightarrow \vec{r} = \vec{i} - 2(\vec{i} \bullet \hat{n})\hat{n}$$

$$B'_e = B_i + \vec{r}$$

$$\Rightarrow B'_e = B_i + \vec{i} - 2(\vec{i} \bullet \hat{n})\hat{n}$$



Position of Ball After Collision (8/8)

$$\vec{r} = \vec{m} - \vec{s}$$

$$\Rightarrow \vec{r} = \vec{i} - 2\vec{s}$$

$$\Rightarrow \vec{r} = \vec{i} - 2(\vec{i} \bullet \hat{n})\hat{n}$$

$$\hat{v} = \frac{\vec{r}}{\|\vec{r}\|}$$