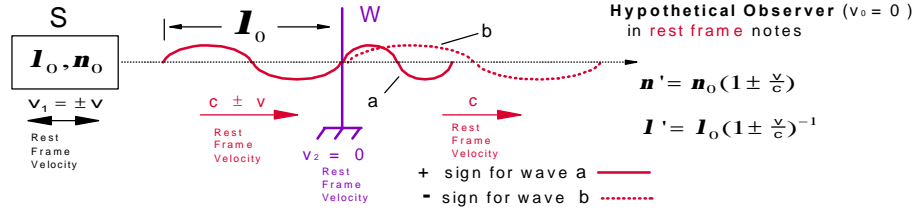


Extinction Shift Principle

Examples of:
AXIOM 4

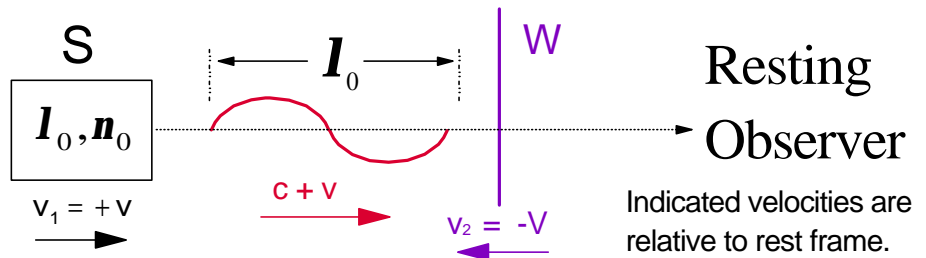


Rules of the Extinction Shift

- A) Determine the frequency of interference \mathbf{n}' in the frame of reference of the interference, namely the face of the window \mathbf{W} of velocity \mathbf{v}_2 . Before interference the *undisturbed, not* measurable wavelength is \mathbf{l}_0 and its *undisturbed* velocity is according to *Galilean Transformations* $\mathbf{C} + \mathbf{v}_1$. Remember! Only the *Hypothetical* observer can note these! For the **primary** source \mathbf{S} approaching / receding $\{ (\mathbf{v}_1 = +\mathbf{v}) / (\mathbf{v}_1 = -\mathbf{v}) \}$ the **secondary** source \mathbf{W} at rest $\{ (\mathbf{v}_2 = 0) \}$ to obtain the frequency of interference \mathbf{n}' multiply \mathbf{n}_0 by the factor $(1 + \frac{v_1 - v_2}{c})$ or $(1 + \frac{v}{c})$ for approaching case; multiply \mathbf{n}_0 by the factor $(1 - \frac{v}{c})$ for receding case. Thus $\mathbf{n}' = \mathbf{n}_0 (1 \pm \frac{v}{c})$ for approaching/receding cases.
- B) Determine the re-emitted wavelength \mathbf{l}' from the secondary source \mathbf{W} . The **secondary** wave is always re-emitted with *undisturbed* velocity \mathbf{C} relative only to the **secondary** source just as the **primary** wave is always re-emitted with *undisturbed* velocity \mathbf{C} relative only to the **primary** source! From $\mathbf{l}' = \frac{c}{\mathbf{n}'}$, $\mathbf{l}_0 = \frac{c}{\mathbf{n}_0}$ and $\mathbf{n}' = \mathbf{n}_0 (1 \pm \frac{v}{c})$ follows $\mathbf{l}' = \mathbf{l}_0 (1 \pm \frac{v}{c})^{-1}$. The *Ordinary* observer in \mathbf{W} 's frame of reference can note only \mathbf{n}' , \mathbf{l}' and the velocity \mathbf{C} of the *extinction shifted* wave! The *undisturbed* wavelength \mathbf{l}_0 is *denied* all observation! **Note again! This is not a Doppler Shift!!!**
- C) For a *Tertiary* source, repeat A) using the output of B). \mathbf{l}' becomes an *undisturbed, not measurable* wavelength, but *calculable* by any ordinary observer in a different frame of reference.

Exercises

1. a) Determine frequency of interference at the approaching window \mathbf{W} .
- b) Determine the re-emitted *undisturbed* wavelength from \mathbf{W} and its *undisturbed* velocity in the rest frame.
- c) What type observer can note the *undisturbed* output in b)?
- d) The ordinary observer can only see what?



2. In problem 1., what changes would the observer note if \mathbf{W} reversed its direction of motion?
3. For planet Mercury's orbit, show why the first order terms in $\frac{v}{c}$ cancels, but not the second order terms.