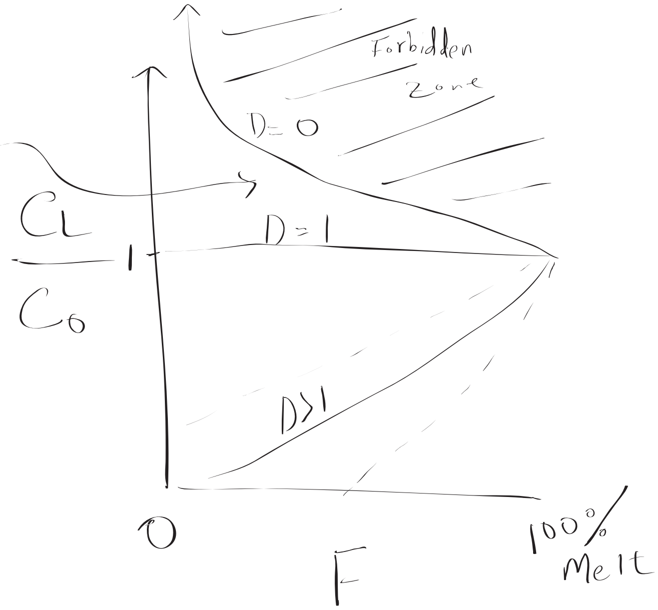
$$\frac{C_L}{C_0} = \frac{1}{F + D(1-F)} \quad \text{or} \quad \frac{C_S}{C_0} = \frac{D}{F + D(1-F)}$$

"Batch" crystallization = "Batch" melting

What is the most a trace element can be enriched?

$$D = 0 \qquad \frac{C_L}{C_0} = \frac{1}{F}$$



Rocks are more complicated (and interesting) than $\boxed{S \mid L}$

Consider peridotite

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to use equation above, we need to calculate D_{BULK}

$$D_{BULK} = D^{ol} \cdot X^{ol} + D^{opx} X^{opx} + D^{cpx} X^{cpx}$$

X^{min} = wt fraction of phase in solid

$$X_i^{ol} + X_i^{opx} + X_i^{cpx} = 1 \quad \text{(no melt)}$$

$$Y^{ol} + Y^{opx} + Y^{cpx} = F$$

$$D_{BULK} = D^{ol}(X_i^{ol} - Y^{ol}) + D^{opx}(X_i^{opx} - Y^{opx}) + D^{cpx}(X_i^{cpx} - Y^{cpx})$$

Function of F!

Case 1: $X_{ol} = X_{opx} = 0.5$

$Y^{ol} = Y^{opx} = 0.03$ "modal" melting

$D^{ol} = 0.01 \quad D^{opx} = 0.1$

$D_{BULK} = 0.0517$