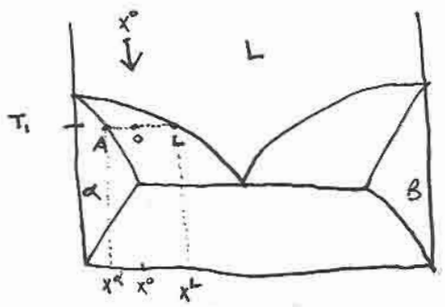
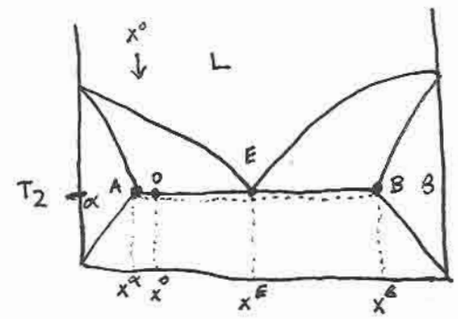
eutectic compositions and phase fractions



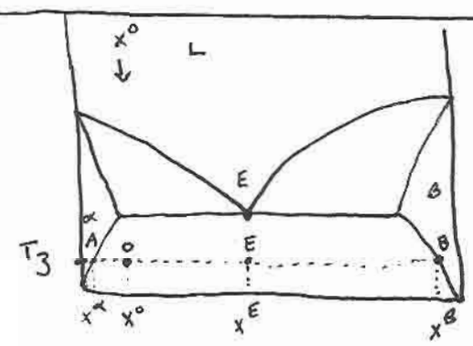
- cooling from high T to T_1 at overall composition x^o – what happens?
- go from all L to L + α.
  α at composition x^α; at $f^\alpha = \frac{OL}{AL}$
  L at x^L; $f^L = \frac{AO}{AL}$
  -overall composition is still x^o.



eutectic rxn.
$L \rightleftharpoons \alpha + \beta$

- continue to T_2, just below $T_{eutectic}$ now what?
- go from $\alpha_p + L \rightarrow \alpha_p + \alpha_E + \beta_E$
  p = primary; E = eutectic
- two phases: α_p and E → pivot point is "O"
  α_p at x^α; $f^\alpha = \frac{OE}{AE}$
  E at x^E; $f^E = \frac{AO}{AE}$
  ↳ further divided into two phases
  -new pivot point is "E"

within eutectic phase:
- α_E at x^α; $f^{\alpha,E} = \frac{EB}{AB}$
- β_E at x^β; $f^{\beta,E} = \frac{AE}{AB}$



- lower further to T_3 – what changes?
  – x^E and x^o never change.
  – within eutectic, x^α ↓ and x^β ↑
  – within primary, x^α ↓

phase fraction definitions same as above!
- but AB is bigger now
- AE is slightly bigger now } by same amount
- AO is slightly bigger }
- EB is slightly bigger
- OE stays the same.