proposed move to System F

At the Manticore meeting on 11/7/07, we discussed moving BOM in the direction of System F.

The following summarize the proposed changes to the <code>BOM</code> module:

New syntactic forms:

- let x : tau = y [tauVec]
- apply f [tauVec] (... / ...)
- let x : tau = CONS [tauVec] (...)
- let x : tau = CONS [tauVec]
- throw k [tau] (...)

New types:

- alpha (* type variables *)
- forall alphaVec . tau
- T [tauVec]
- tau + tau

Here are the changes to the datatypes in the <code>BOM</code> module:

datatype term
  = ...

  E_Apply of (var * ty list * var list * var list)
  E_Throw of (var * ty list * var list)
  E_HLOp of (hlop * ty list * var list * var list)

and rhs
  = ...

  E_TyApply of (var * ty list)
  E_DCon of (data_con * ty list * ty list)

and lambda = FB of

  Unknown macro: { f }

and pat
  = P_DCon of (data_con * ty list * var list)

  P_DConst of (data_con * ty list)

  ...

and the changes to the BOMTy module:

datatype ty
  = T_Var of ty_var

  T_Forall of (ty_var list * ty)
  T_TyCon of (tyc * ty list)

  ...

We'll also need to add the <code>ty_var</code> type and make changes to the representation of <code>tyc</code>s.