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 = CONST [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.