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 \( x : \tau = y [\text{tauVec}] \)
- apply \( f [\tauVec] \) (... / ...)
- let \( x : \tau = \text{CONS} [\tauVec] \) (...)
- let \( x : \tau = \text{CONST} [\tauVec] \)
- 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
= ...

```plaintext
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
= ...

```plaintext
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)

```plaintext
P_DConst of (data_con * ty list)
...
```

and the changes to the BOMTy module:

datatype ty
= T_Var of ty_var

```plaintext
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.