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 \texttt{BOM}</code> module:

New syntactic forms:

- \texttt{let x : \tau = y [\tauVec]}
- \texttt{apply f [\tauVec] (\ldots / \ldots)}
- \texttt{let x : \tau = CONS [\tauVec] (\ldots)}
- \texttt{let x : \tau = CONST [\tauVec]}
- \texttt{throw k [\tau] (\ldots)}

New types:

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

Here are the changes to the datatypes in the \texttt{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 ...
```

```
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 \texttt{ty_var}</code> type and make changes to the representation of \texttt{tyc}</code>s.