

# Distributed Hello World in Mungo

Dimitris Kouzapas

## 1 Two Parties

### 1.1 Global Protocol

```
Bob → Alice : ⟨String⟩.  
Bob → Alice : {  
    Time : Alice → Bob : ⟨Time⟩.end,  
    Greet : Alice → Bob : ⟨String⟩.end  
}
```

### 1.2 Projection - Local Protocols

|                               |                             |
|-------------------------------|-----------------------------|
| Bob :                         | Alice :                     |
| [Alice]!⟨String⟩;             | [Bob]?⟨String⟩;             |
| [Alice] ⊕ {                   | [Bob]&{                     |
| Time : [Alice]?⟨Time⟩; end,   | Time : [Bob]!⟨Time⟩; end,   |
| Greet : [Alice]?⟨String⟩; end | Greet : [Bob]!⟨String⟩; end |
| }                             | }                           |

## 2 Three Party Protocol

### 2.1 Global Protocol

```
Bob → Alice : ⟨String⟩.  
Bob → Carol : ⟨String⟩.  
Bob → Alice, Carol : {  
    A : Alice → Bob : ⟨Time⟩.end,  
    C : Carol → Bob : ⟨Time⟩.end  
}
```

## 2.2 Projection-Local Protocols

|                           |                        |
|---------------------------|------------------------|
| Bob :                     | Alice, Carol :         |
| [Alice]!(String);         | [Bob]?(String);        |
| [Carol]!(String);         | [Bob]&{                |
| [Alice, Carol] $\oplus$ { | A : [Bob]!(Time); end, |
| A : [Alice]?(Time); end,  | C : end                |
| C : [Carol]?(Time); end   | }                      |
| }                         |                        |