

# Generative Model

```
def gaussian_mixture(x):
    d1 = Categorical(prob=[1/2, 1/2])
    c = sample(dist=d1, address=α1)

    if c==0:
        d2 = Normal(mean=1, std=1)
        m = sample(dist=d2, address=α2)
    else c==1:
        d2 = Normal(mean=-1, std=1)
        m = sample(dist=d2, address=α3)

    d3 = Normal(mean=m, std=1)
    observe(x, likelihood=d3, address=α4)

    return c
```

# Probabilistic Surrogate Network

