

tikzpicture[xscale=2.4]var/.style=draw, circle, fill=main!60, minimum size=.75cm sample/.style=thick,  
draw, -|, ann1/.style=align=center, text width=2cm, node distance=2.5cm, text=main ann2/.style=align=center,  
text width=2cm, node distance=1.3cm,text=main annline/.style=draw,dashed,main speaker/.style=draw  
hearer/.style=draw brace/.style=decoration=brace,mirror,raise=10pt, decorate  
[speaker] (-.95,0) rectangle (2,1.75); [] at (-.7, .25) speaker;  
[var] (alpha) at (0,1)  $\alpha_t$ ; [left of=alpha,align=right] (observations)  $c_{-t}$ ; [left of=observations,align=right]  
(bias)  $\alpha_0$ ; (observations) - node = (alpha); (bias) - node+ (observations); [var] (lang) at (1,1)  $t$ ; [var] (obs)  
at (2.35,1)  $t$ ;  
[sample] (alpha) - node[above] (langdist)  $p_{(t} | \alpha_t)$  (lang); [sample] (lang) - node[above,pos=.44] (prod-  
dist)  $p(x_t | t)$  (obs); [sample] (alpha) to[out=-60,in=-120,max distance=.75cm] node[above,pos=.54] (pi)  $\pi_t$   
(obs);  
[ann1,above of=lang] (a1) internal  
; [annline] (a1) - (lang); [ann2,above of=obs, node distance=1.45cm] (a2) production; [annline] (a2) -  
(obs); [ann1,above of=alpha] (a3) beliefs; [annline] (a3) - (alpha);  
[ann2,above of=langdist] (a4) language  
; [annline] (a4) - (langdist); [ann2,above of=proddist, node distance=2.27cm] (a5) production  
; [annline] (a5) - (proddist); [ann1,above of=pi, node distance=2.1cm] (a6) average  
; [annline] (a6) - (pi);  
[ann1,above of=bias] (a7) innate  
; [annline] (a7) - (bias); [ann2,above of=observations, node distance=1.4cm] (a8) observations  
; [annline] (a8) - (observations);  
[hearer] (2.7,0) rectangle (4.1,1.75); [] at (2.95, .25) hearer; [thick,-|] (obs) - (2.7, 1);  
[align=left] at (3.35, .7)  $\alpha_{t+1} := \alpha_t + c_t$ ;  
(posterior) at (3, 1.2)  $p_{t+1}()$ ; [right of=posterior, node distance=1.3cm] (likelihood)  $p(x_t |)$ ; [right  
of=likelihood] (prior)  $p_t()$ ; (posterior) - node  $\propto$  (likelihood);  
[ann1,above of=posterior, node distance=2.25cm] (a9) posterior  
; [annline] (a9) - (posterior);  
[ann2,above of=likelihood, node distance=1.25cm] (a10) likelihood; [annline] (a10) - (likelihood);  
[ann1,above of=prior, node distance=2.15cm] (a11) prior; [annline] (a11) - (prior);  
[2] scope[yshift=1] [speaker] (-.95,0) rectangle (2,.5); [] at (-.7, .25) speaker;  
[var] (obs) at (2.35,.25)  $t_{+2}$ ; [sample] (2, .25) - (obs); [thick,-|] (obs) - (2.7, .25);  
[hearer] (2.7,0) rectangle (4.1,.5); [] at (2.95, .25) hearer;