



$a_2$  influences  $Z_2, Z_3, Z_4, \dots$  but does not influence  $Z_1, Z_0, Z_{-1}, \dots$

In general,  $a_t$  influences  $Z_t, Z_{t+1}, Z_{t+2}, \dots$  but not  $Z_{t-1}, Z_{t-2}, Z_{t-3}, \dots$

Therefore  $a_t$  is correlated with  $Z_t, Z_{t+1}, Z_{t+2}, \dots$  but is independent of  $Z_{t-1}, Z_{t-2}, Z_{t-3}, \dots$

Expressed another way:

If  $s < t$ , then  $Z_s$  and  $a_t$  are independent.

## Discussion of AR(1) Process