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pan=2500; each=500; set.seed(2548);
pdmabrd=seq(.01,.99,.02); nbrd=length(pdmabrd);
pdmamag=c(seq(.01,.97,.03),.99); nmag=length(pdmamag);
phi_brd=0.2; S_brd=1/phi_brd-1;
phi_mag=0.5; S_mag=1/phi_mag-1;
report=array(c(0,1,10,.1,5,0,1,1,1,1,0,0,0,0,1),dim=c(5,3));
nrep=c("None","Bench","Fort","Faible","Selon");
rarete=0;
assort=array(c(1,1,0,1),dim=c(2,2));
level=seq(.025,.5,.025);
titles=array(0,dim=c(nrow(report),length(rarete),nbrd,nmag))

date();
for (i in 1:each){
  pref_brd=rgamma(2*nbrd*pan,c(pdmabrd,1-pdmabrd)*S_brd)
  pref_brd=array(pref_brd,dim=c(nbrd,2,pan))
  pref_brd=pref_brd[,1,]/apply(pref_brd,c(1,3),sum)
  pref_brd=array(rep(pref_brd,nmag),dim=c(nbrd,pan,nmag))
  pref_brd=aperm(pref_brd,c(2,1,3))
  pref_mag=rgamma(2*nmag*pan,c(pdmamag,1-pdmamag)*S_mag)
  pref_mag=array(pref_mag,dim=c(nmag,2,pan))
  pref_mag=pref_mag[,1,]/apply(pref_mag,c(1,3),sum)
  pref_mag=array(rep(pref_mag,nbrd),dim=c(nmag,pan,nbrd))
  pref_mag=aperm(pref_mag,c(2,3,1))
  for (irar in 1:length(rarete)){
    ms_brd1=pref_brd*exp(rarete[irar]*(1-pref_mag))
    ass1=ms_brd1+1-pref_brd; ass2=(1-pref_brd)/ass1;
ms_brd1=ms_brd1/ass1; rm(ass1);
    for (irep in 1:nrow(report)){
      if (report[irep,1]==0){
        reportcase=array(1,dim=c(pan,nbrd,nmag))
      }
      if (report[irep,1] !=0 & report[irep,2]==0 & report
[irep,3]==0){
        reportcase=array(1/(report[irep,1]+1),dim=c
(pan,nbrd,nmag))
      }
      if (report[irep,1] !=0 & report[irep,2]==0 & report
[irep,3]!=0){
        reportcase=ass2^report[irep,2]/(report[irep,1]*
((1-ass2)^report[irep,2])+ass2^report[irep,2])
      }
      if (report[irep,1] !=0 & report[irep,2]!=0 & report
[irep,3]==0){
        reportcase=1/(report[irep,1]*((1-pref_mag)^report

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[irep,3])+1)
    }
    if (report[irep,1] !=0 & report[irep,2]!=0 & report
[irep,3]!=0){
        reportcase=ass2^report[irep,2]/(report[irep,1]*
((1-pref_mag)^report[irep,3])*((1-ass2)^report[irep,2])
+ass2^report[irep,2])
        }
        titles[irep,irar,,]=titles[irep,irar,,]+apply
((pref_mag/(pref_mag+(1-pref_mag)*reportcase))*ms_brd1,c
(2,3),mean);
    }
}
titles=titles/each
date()

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