



























II-Nim	state	e spa	се
(,)-A (i,)-A (i,)-A (_,)-B (i,)-B (i,)-B (_,)-B (,)-A (,)-B	(_, i)-A (i, i)-A (ii, i)-A (_, i)-B (i, i)-B (ii, i)-B (_, i)-A (i, i)-A (i, i)-A (i, i)-B (i, i)-B	(_, ii)-A (i, ii)-A (ii, ii)-A (_, ii)-B (i, ii)-B (ii, ii)-B (ii, ii)-B (i, ii)-A (i, ii)-A (i, ii)-A (i, ii)-B (i, ii)-B (i, ii)-B (ii, ii)-B	<ul> <li>Equivalent states due to symmetry (e.g. (_,ii)-A and (ii,_)-A)</li> <li>Merge them using a canonical description (e.g. left pile never larger than right)!</li> </ul>

-	N	im formal defi	nition			
S	=	( _ , _ )-A ( _ , i )-A ( _ , ii )-A ( i , i )-A ( i , ii )-A ( ii , ii )-A				
		( _ , _ )-B ( _ , i )-B ( _ , ii )-B ( i , i )-B ( i , ii )-B ( ii , ii )-B				
<b>S</b> <sub>0</sub>	=	( ii , ii )-A				
succ()	=	succ(_,i)-A = { (_,_)-B }	succ(_,i)-B = { (_,_)-A }			
		succ(_,ii)-A = { (_,_)-B , (_,i)-B }	succ(_,ii)-B = { (_,_)-A , (_,i)-A }			
		succ(i,i)-A = { (_,i)-B }	succ(i,i)-B = { (_,i)-A }			
		succ(i,ii)-A = { (_,i)-B (_,ii)-B (i,i)-B}	succ(i,ii)-B = { (_,i)-A , (_,ii)-A (i,i)-A }			
		succ(ii,ii)-A = { (_,ii)-B , (i,ii)-B }	succ(ii,ii)-B = { (_,ii)-A , (i,ii)-A }			
F	=	(_,_)-A	( _ , _ )-B			
V	=	V( _ , _ )-A = +1	V(_,_)-B = -1			





















































Game	State-space complexity	Game-tree complexity	Branching factor
Nine man's morris	~ 10 <sup>10</sup>	~ 10 <sup>50</sup>	10
Checkers	~ 10 <sup>20</sup>	~ 10 <sup>31</sup>	2.8
Rubik's cube	~ 10 <sup>19</sup>		12
Chess	~ 1047	~ 10 <sup>123</sup>	35
Go (9x9)	~ 10 <sup>38</sup>		
Go (19x19)	~ 10 <sup>171</sup>	~ 10 <sup>360</sup>	250
Gomoku (15x15)	~ 10 <sup>105</sup>	~ 10 <sup>70</sup>	210
Gomoku (15x15)	~ 10 <sup>105</sup>	~ 10 <sup>70</sup>	210

