

Complexité et algorithmes

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Analyse des résultats

On remarque que les résultats sont cohérents avec les résultats théoriques. En effet, on observe que la taille du VC 2 approx est toujours supérieure d'un facteur 2 à la taille du VC kernel ainsi que du VC boundedSearchTree. Sur certaines valeurs de n la taille de VC boundedSearchTree est légèrement supérieure à la taille du VC kernel.

On remarque qu'à partir de n = 50, le temps d'attente pour obtenir les résultats de VC boundedSearchTree et VC kernel est supérieure à 3 min. Alors que pour 2Approx, il est possible d'augmenter la valeur de n encore grandement.

Results

n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
10	30	11	4	2	6	3	4
10	40	18	6	3	14	7	7
10	50	18	5	3	22	11	11
10	10	5	3	1	28	14	14
10	20	12	5	2	36	18	18
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
20	15	29	9	2	14	7	9
20	20	43	9	4	30	15	15
20	25	37	7	3	46	23	23
20	10	17	3	1	60	30	30
20	20	45	9	4	76	38	38
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
30	10	48	7	3	24	12	16
30	13	48	6	3	48	24	24
30	16	72	10	4	72	36	36
30	10	32	5	2	96	48	48

n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
30	20	91	11	6	124	62	62
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
40	7	62	7	3	36	18	19
40	10	85	10	4	72	36	36
40	12	86	9	4	100	50	50
40	10	84	7	4	134	67	67
40	20	159	14	7	172	86	86
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
50	6	67	7	2	34	17	22
50	8	119	11	4	78	39	39
50	10	121	9	4	118	59	59
50	10	113	8	4	162	81	81
50	20	235	15	9	208	104	104
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
60	5	102	11	3	46	NRP	NRP
60	6	121	8	4	98	NRP	NRP
60	8	155	11	5	154	NRP	NRP
60	10	155	13	5	200	NRP	NRP
60	20	367	19	12	254	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
70	4	106	7	3	50	NRP	NRP
70	5	136	9	3	102	NRP	NRP
70	7	186	9	5	160	NRP	NRP
70	10	252	13	7	222	NRP	NRP
70	20	518	22	14	288	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size

n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
80	3	138	9	3	60	NRP	NRP
80	5	147	8	3	126	NRP	NRP
80	6	190	12	4	194	NRP	NRP
80	10	311	14	7	270	NRP	NRP
80	20	648	25	16	346	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
90	3	125	8	2	66	NRP	NRP
90	4	193	9	4	142	NRP	NRP
90	5	221	10	4	218	NRP	NRP
90	10	405	17	9	298	NRP	NRP
90	20	797	26	17	386	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
100	3	131	7	2	76	NRP	NRP
100	4	208	10	4	160	NRP	NRP
100	5	271	12	5	242	NRP	NRP
100	10	499	16	9	334	NRP	NRP
100	20	963	28	19	430	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
120	2	185	8	3	94	NRP	NRP
120	3	209	10	3	188	NRP	NRP
120	4	318	11	5	294	NRP	NRP
120	10	737	22	12	404	NRP	NRP
120	20	1452	37	24	522	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
140	2	205	9	2	116	NRP	NRP
140	2	271	9	3	226	NRP	NRP

n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
140	3	336	11	4	346	NRP	NRP
140	10	973	23	13	478	NRP	NRP
140	20	1909	39	27	614	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
160	1	226	8	2	110	NRP	NRP
160	2	305	10	3	238	NRP	NRP
160	3	386	11	4	374	NRP	NRP
160	10	1206	27	15	526	NRP	NRP
160	20	2546	46	31	682	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
180	1	274	8	3	144	NRP	NRP
180	2	360	11	4	296	NRP	NRP
180	2	462	12	5	450	NRP	NRP
180	10	1594	31	17	624	NRP	NRP
180	20	3242	51	36	802	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
200	1	288	9	2	156	NRP	NRP
200	2	397	11	3	328	NRP	NRP
200	2	534	13	5	500	NRP	NRP
200	10	2019	32	20	696	NRP	NRP
200	20	4081	55	40	890	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
220	1	301	8	2	156	NRP	NRP
220	1	489	10	4	346	NRP	NRP
220	2	557	11	5	540	NRP	NRP
220	10	2362	35	21	754	NRP	NRP

n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
220	20	4823	60	43	970	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
240	1	357	7	2	192	NRP	NRP
240	1	484	10	4	390	NRP	NRP
240	2	594	12	4	592	NRP	NRP
240	10	2902	44	24	826	NRP	NRP
240	20	5619	62	46	1062	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
260	1	388	8	2	204	NRP	NRP
260	1	526	10	4	432	NRP	NRP
260	1	656	11	5	650	NRP	NRP
260	10	3358	38	25	904	NRP	NRP
260	20	6940	70	53	1160	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
280	1	426	8	3	220	NRP	NRP
280	1	535	12	3	462	NRP	NRP
280	1	680	12	4	700	NRP	NRP
280	10	3901	42	27	974	NRP	NRP
280	20	7875	77	56	1250	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
300	1	432	9	2	224	NRP	NRP
300	1	583	12	3	466	NRP	NRP
300	1	785	12	5	730	NRP	NRP
300	10	4385	45	29	1024	NRP	NRP
300	20	8917	77	59	1320	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size

n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
320	0	469	8	2	264	NRP	NRP
320	1	630	12	3	536	NRP	NRP
320	1	838	14	5	816	NRP	NRP
320	10	5079	51	31	1132	NRP	NRP
320	20	10222	86	63	1450	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
340	0	513	15	3	260	NRP	NRP
340	1	690	11	4	554	NRP	NRP
340	1	866	12	5	846	NRP	NRP
340	10	5696	47	33	1180	NRP	NRP
340	20	11496	92	67	1516	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
360	0	544	10	3	280	NRP	NRP
360	1	739	12	4	582	NRP	NRP
360	1	868	11	4	886	NRP	NRP
360	10	6616	54	36	1240	NRP	NRP
360	20	12997	91	72	1594	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
380	0	573	10	3	302	NRP	NRP
380	1	776	10	4	622	NRP	NRP
380	1	918	12	4	942	NRP	NRP
380	10	7130	56	37	1312	NRP	NRP
380	20	14244	97	74	1690	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
400	0	612	9	3	318	NRP	NRP
400	1	820	11	4	638	NRP	NRP

n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
400	1	1008	12	5	992	NRP	NRP
400	10	8001	60	40	1388	NRP	NRP
400	20	16074	110	80	1786	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
420	0	639	10	3	322	NRP	NRP
420	0	810	9	3	676	NRP	NRP
420	1	1083	13	5	1036	NRP	NRP
420	10	8765	63	41	1452	NRP	NRP
420	20	17636	106	83	1868	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
440	0	607	8	2	342	NRP	NRP
440	0	855	11	3	714	NRP	NRP
440	1	1083	12	4	1104	NRP	NRP
440	10	9610	63	43	1536	NRP	NRP
440	20	19258	111	87	1972	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
460	0	693	9	3	354	NRP	NRP
460	0	886	13	3	722	NRP	NRP
460	1	1182	13	5	1122	NRP	NRP
460	10	10549	65	45	1580	NRP	NRP
460	20	21086	119	91	2036	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
480	0	733	12	3	374	NRP	NRP
480	0	967	11	4	776	NRP	NRP
480	1	1204	12	5	1184	NRP	NRP
480	10	11527	67	48	1656	NRP	NRP

n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
480	20	22772	123	94	2134	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
500	0	731	9	2	386	NRP	NRP
500	0	982	10	3	800	NRP	NRP
500	1	1246	12	4	1230	NRP	NRP
500	10	12320	66	49	1726	NRP	NRP
500	20	25080	126	100	2224	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
550	0	847	11	3	422	NRP	NRP
550	0	1119	11	4	884	NRP	NRP
550	0	1361	12	4	1364	NRP	NRP
550	10	15173	76	55	1906	NRP	NRP
550	20	30253	136	110	2452	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
600	0	842	9	2	480	NRP	NRP
600	0	1191	13	3	978	NRP	NRP
600	0	1447	12	4	1484	NRP	NRP
600	10	18043	85	60	2076	NRP	NRP
600	20	35985	147	119	2670	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
650	0	970	8	2	504	NRP	NRP
650	0	1329	12	4	1036	NRP	NRP
650	0	1605	13	4	1590	NRP	NRP
650	10	21341	91	65	2234	NRP	NRP
650	20	42044	162	129	2884	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size

n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
700	0	1048	10	2	532	NRP	NRP
700	0	1441	11	4	1128	NRP	NRP
700	0	1758	14	5	1728	NRP	NRP
700	10	24581	94	70	2418	NRP	NRP
700	20	48997	177	139	3116	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
750	0	1103	10	2	580	NRP	NRP
750	0	1472	11	3	1206	NRP	NRP
750	0	1907	13	5	1858	NRP	NRP
750	10	27985	102	74	2600	NRP	NRP
750	20	55764	184	148	3346	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
800	0	1201	9	3	640	NRP	NRP
800	0	1680	11	4	1340	NRP	NRP
800	0	1972	12	4	2036	NRP	NRP
800	10	31733	111	79	2830	NRP	NRP
800	20	63931	198	159	3628	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
850	0	1271	9	2	672	NRP	NRP
850	0	1794	13	4	1392	NRP	NRP
850	0	2128	14	5	2130	NRP	NRP
850	10	36032	111	84	2974	NRP	NRP
850	20	72179	213	169	3820	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
900	0	1312	13	2	686	NRP	NRP
900	0	1833	12	4	1422	NRP	NRP

n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
900	0	2374	14	5	2214	NRP	NRP
900	10	40522	116	90	3110	NRP	NRP
900	20	81321	213	180	4010	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
950	0	1457	10	3	738	NRP	NRP
950	0	1891	13	3	1522	NRP	NRP
950	0	2349	16	4	2326	NRP	NRP
950	10	45253	131	95	3270	NRP	NRP
950	20	90125	235	189	4216	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
1000	0	1437	11	2	774	NRP	NRP
1000	0	1948	11	3	1594	NRP	NRP
1000	0	2567	14	5	2452	NRP	NRP
1000	10	49943	131	99	3446	NRP	NRP
1000	20	99575	238	199	4444	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
1100	0	1667	10	3	864	NRP	NRP
1100	0	2165	11	3	1764	NRP	NRP
1100	0	2688	13	4	2694	NRP	NRP
1100	10	60590	148	110	3788	NRP	NRP
1100	20	120814	259	219	4884	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
1200	0	1816	11	3	918	NRP	NRP
1200	0	2371	11	3	1904	NRP	NRP
1200	0	3084	14	5	2948	NRP	NRP
1200	10	71986	155	119	4140	NRP	NRP

n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
1200	20	143918	291	239	5338	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
1300	0	1971	10	3	1026	NRP	NRP
1300	0	2651	15	4	2104	NRP	NRP
1300	0	3092	14	4	3234	NRP	NRP
1300	10	84233	165	129	4524	NRP	NRP
1300	20	168913	318	259	5822	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
1400	0	2065	9	2	1076	NRP	NRP
1400	0	2841	12	4	2244	NRP	NRP
1400	0	3549	16	5	3430	NRP	NRP
1400	10	97555	181	139	4822	NRP	NRP
1400	20	195630	333	279	6218	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
1500	0	2172	10	2	1152	NRP	NRP
1500	0	3093	11	4	2382	NRP	NRP
1500	0	3706	13	4	3662	NRP	NRP
1500	10	112249	192	149	5154	NRP	NRP
1500	20	224566	347	299	6654	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
1600	0	2365	10	2	1226	NRP	NRP
1600	0	3208	12	4	2564	NRP	NRP
1600	0	3955	14	4	3940	NRP	NRP
1600	10	127700	200	159	5532	NRP	NRP
1600	20	256777	374	320	7128	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size

n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
1700	0	2568	9	3	1310	NRP	NRP
1700	0	3306	13	3	2736	NRP	NRP
1700	0	4283	15	5	4210	NRP	NRP
1700	10	143821	216	169	5902	NRP	NRP
1700	20	288272	397	339	7600	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
1800	0	2777	14	3	1414	NRP	NRP
1800	0	3680	14	4	2918	NRP	NRP
1800	0	4508	14	5	4470	NRP	NRP
1800	10	161430	221	179	6262	NRP	NRP
1800	20	323884	426	359	8060	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
1900	0	2959	12	3	1500	NRP	NRP
1900	0	3784	11	3	3070	NRP	NRP
1900	0	4708	13	4	4710	NRP	NRP
1900	10	180456	233	189	6602	NRP	NRP
1900	20	361204	452	380	8500	NRP	NRP
n	p	m	deltaG	dmoyG	VC 2 approx size	VC kernel size	VC bounded search tree size
2000	0	3071	10	3	1572	NRP	NRP
2000	0	3975	11	3	3220	NRP	NRP
2000	0	4846	14	4	4950	NRP	NRP
2000	10	199795	242	199	6938	NRP	NRP
2000	20	399249	464	399	8934	NRP	NRP