

Appendix C

Vertices in 4D-OPP's defined in terms of Manifold and Non-Manifold Edges and Their Corresponding 4D Configurations

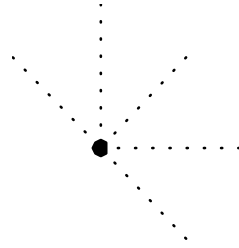
We will describe and classify these vertices in 4D-OPP's depending on the number of Manifold and Non-Manifold edges incident to them. In the nomenclature to use “V” means vertex, the first digit shows the number of incident Manifold edges, the “N” followed by a digit is present if there are incident Non-Manifold edges to the vertex and the digit indicates the number of such edges, and a third digit is included to distinguish between two different types that otherwise could receive the same name. In each vertex continuous lines indicate Manifold edges and dotted lines indicate Non-Manifold edges.

●
V0

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
0	1	16	253
4	13	12	241
8	109 132		

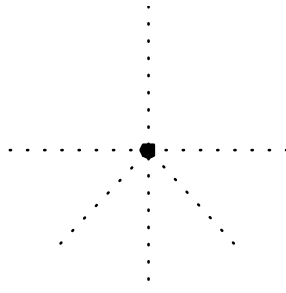
-----●-----
V0N2

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
4	17 26	12	231
6	62 66	10	198
8	120 144		



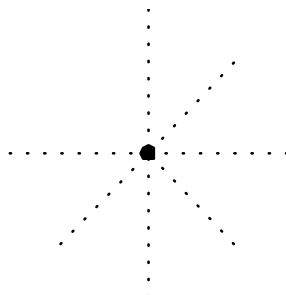
V0N5

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
7	105	9	147



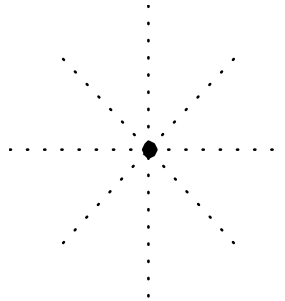
V0N6

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
5	42	10	197
8	141		
	143		



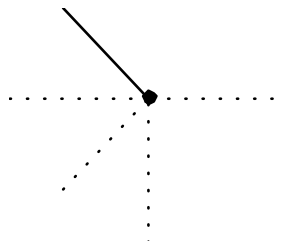
V0N7

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
4	18	12	230
5	43	11	209
6	64	10	180
	72		184
	76		
7	106	9	149
8	125		



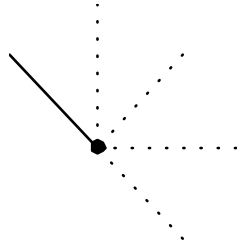
V0N8

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
4	27	12	226
	28		227
5	45	11	206
	47		207
	48		210
6	70	10	176
	75		177
	77		178
	78		179
7	102	9	185
	104		146
	108		148
8	134		152
	139		
	145		



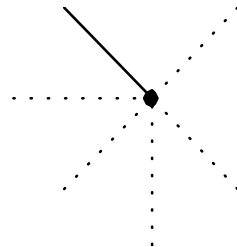
V1N4

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
5	35



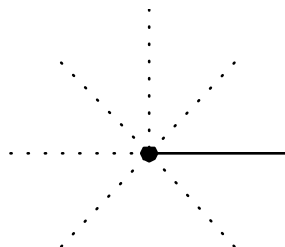
V1N4-2

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
9	156



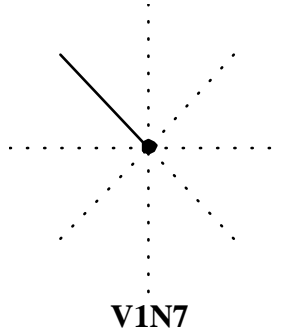
V1N5

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
4	25	12	232
6	65		

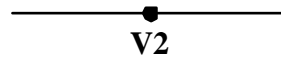


V1N6

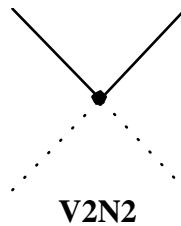
Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
7	107	9	150
			164



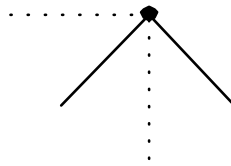
Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
4	21	12	228
5	36 39	11	208 211
6	71 73	10	182 183 188
7	95 97 103	9	154 157
8	133 135 137		



Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
2	3	14	251
6	49	10	205
8	116		

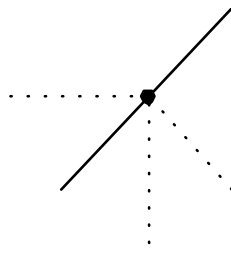


Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
4	24



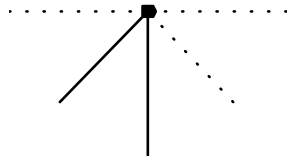
V2N2-2

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
9	163
11	224



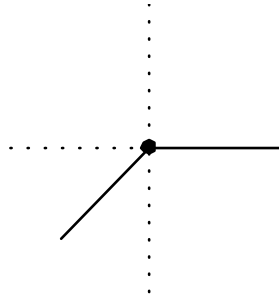
V2N3

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
4	16	12	238
8	113 131		



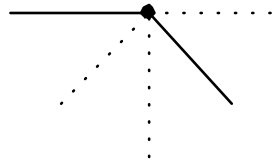
V2N3-2

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
5	44	11	212
7	89		



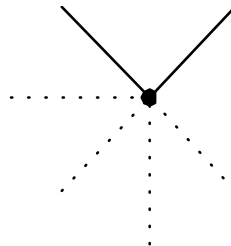
V2N3-3

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
6	63



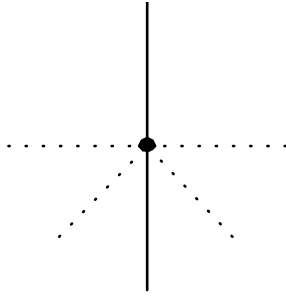
V2N3-4

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
9	172



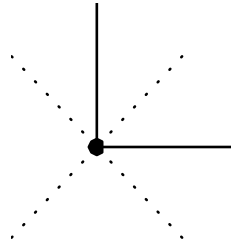
V2N4

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
5	33	11	217
6	53		
7	87		
	98		
8	119		



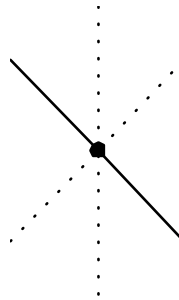
V2N4-2

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
6	67



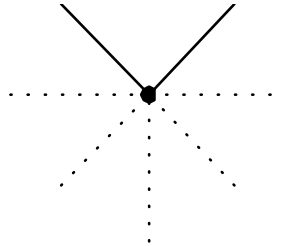
V2N4-3

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
8	136



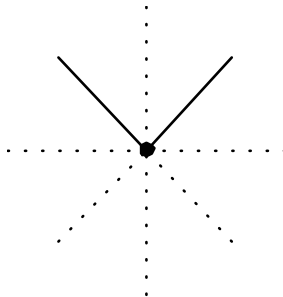
V2N4-4

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
8	142



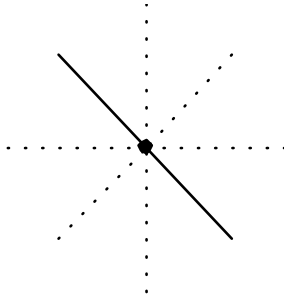
V2N5

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
4	20	12	233
5	41	11	215
7	88 91	9	160
8	138		



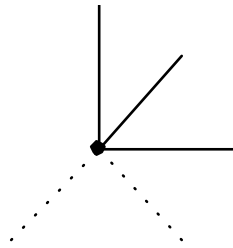
V2N6

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
4	23	12	229
5	46	11	213 214 216
6	69	10	187 190
7	94 96	9	151 159 161 162
8	130		



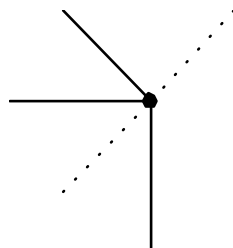
V2N6-2

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
8	140



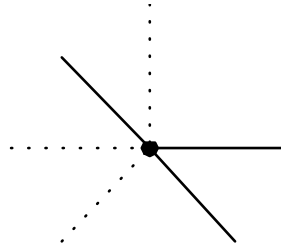
V3N2

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
3	9	13	246
5	30		
7	90		



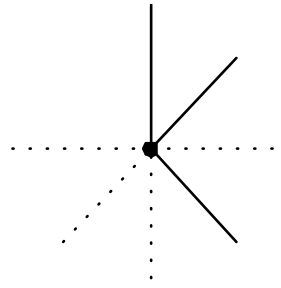
V3N2-2

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
5	40



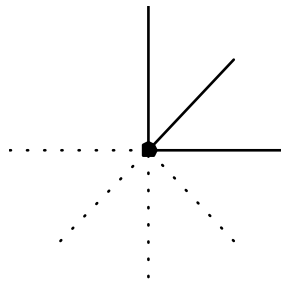
V3N3

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
10	200



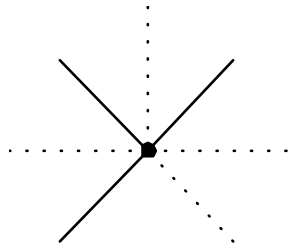
V3N4

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
6	68	10	186
8	126 127	9	158



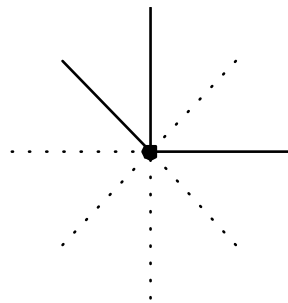
V3N4-2

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
3	8	13	244
4	19	12	234
5	31	11	223
7	86	9	165 169
8	114 115		



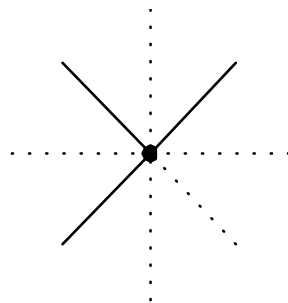
V3N4-3

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
7	99



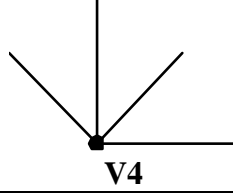
V3N5

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
6	54	10	189
	58		194
8	122 124	9	155

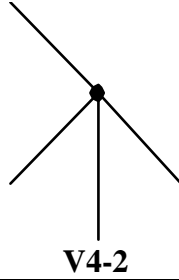


V3N5-2

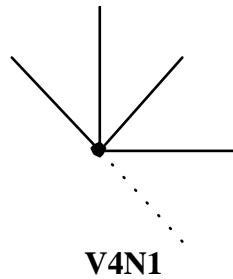
Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
7	100	9	153



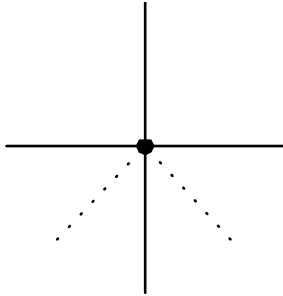
Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
1	2	15	252
3	7	13	247
5	29	11	225
7	79	9	175



Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
6	59	10	201

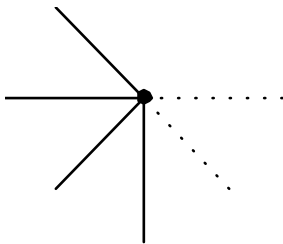


Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
3	11	13	245



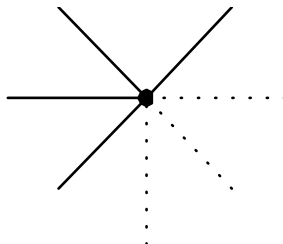
V4N2

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
2	4	14	250
6	50	12	235
		10	204



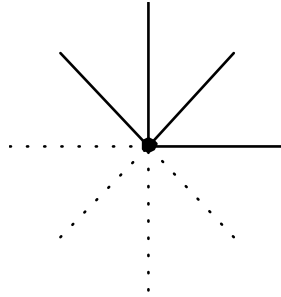
V4N2-2

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
6	52	10	192



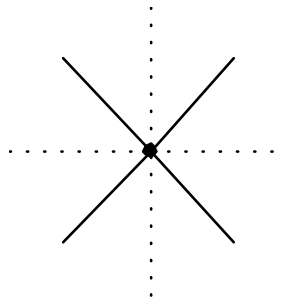
V4N3

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
5	34	11	218
7	92	10	199



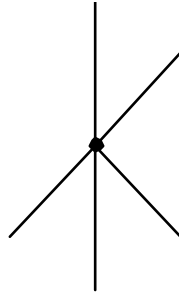
V4N4

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
3	10	13	242
	12		243
6	56 61	10	191
			193
			195
			196
7	82	9	166
			168



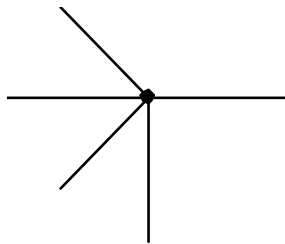
V4N4-2

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
6	74	10	181
7	93		
8	121		
	123		



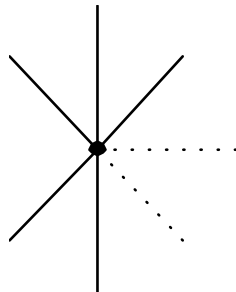
V5

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
4	15	12	239



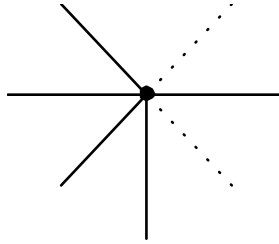
V5-2

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
7	80	9	173
	84		174



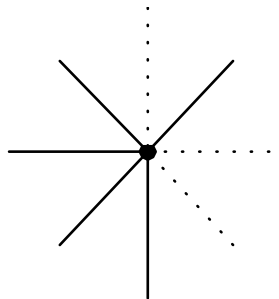
V5N2

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
4	22	12	236
8	117		



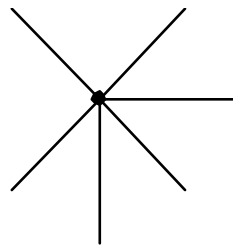
V5N2-2

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
6	57 60



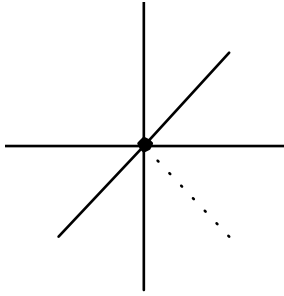
V5N3

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
5	37	11	219 220
8	128		



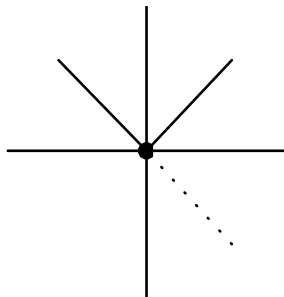
V6

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
5	38
8	112



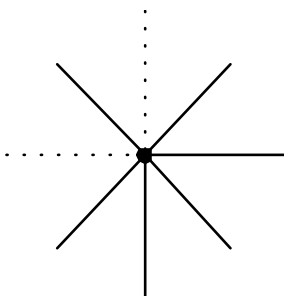
V6N1

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
2	5	14	249
6	51		
8	118		



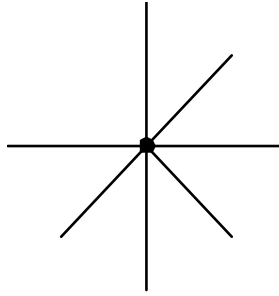
V6N1-2

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
9	167



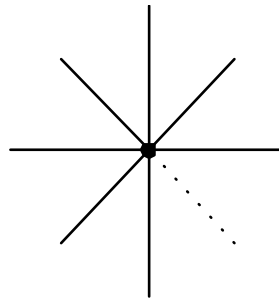
V6N2

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
7	81 83 101	12	237
8	129	9	170 171



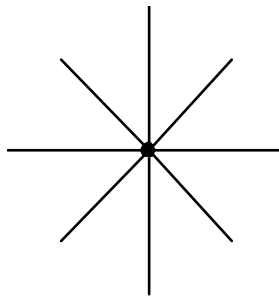
V7

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
4	14	12	240
8	111	11	221
		10	203



V7N1

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
7	85



V8

Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)	Number of surrounding Hyper-boxes	Corresponding Configurations (see Appendix A)
2	6	14	248
5	32	11	222
6	55	10	202
8	110		

