

CONICS IN KUMMER QUARTICS: THE TABLES

ALEX DEGTYAREV

1. THE OPEN STRATUM

There is a single connected real stratum; its generic member has no lines and 352 irreducible conics, *viz.*

- 16 Kummer conics $e \in \Omega$,
- 16 duals e^* thereof, and
- 320 B_2 -conics.

One has

$$|\mathfrak{G}| = 23040, \quad i_\Omega = 2, \quad \text{and} \quad \mathfrak{G}_\omega \cong (\mathbb{Z}/4)^4$$

is #21 in the following table:

#	$ G_\omega $	Index	G_ω
21	16	14	C_4^2
39	32	27	$2^4 C_2$
49	48	50	$2^4 C_3$
56	64	138	$\Gamma_{25} a_1$
65	96	227	$2^4 D_6$
75	192	1023	$4^2 \mathfrak{A}_4$
81	960	11357	M_{20}

2. STRATA OF CODIMENSION ≤ 1

Name	Types	δ_2^2	δ_3	Lines	Conics	$ G $	i_Ω	G_ω	$ \det $	(r, c)
open					352	23040	2	21	576	(1, 0)
1*	$4_0^*, 12_0^*$	1/4	± 1	8	16 + 336	1152	2	21	400	(1, 0)
2*	$6_0^*, 10_0^*$	5/4	± 4	32	160 + 192	1920	2	21	208	(1, 0)
3	$4_0, 10_0$	1	± 3		392	3072	4	21	576	(1, 0)
4	$6_0, 8_0$	1	± 2		432	3072	4	21 ²	448	(1, 0)
5	12_0	1	± 1		360	1536	2	21	832	(1, 0)
6	12_1	0	± 4		384	3072	4	21	640	(1, 0)
7	12_2	1	0		400	3072	2	21 ²	576	(1, 0)

1991 *Mathematics Subject Classification*. Primary: 14J28; Secondary: 14N25.

Key words and phrases. K3-surface, quartic surface, Kummer surface, conic.

The author was partially supported by the TÜBİTAK grant 118F413.

3. STRATA OF CODIMENSION 2

Clusters	\circ	Lines	Conics	$ G $	i_Ω	G_ω	$ \det $	(r, c)
$1^*, 1^*, 4$	1, 2	16	$48 + 384$	512	4	21^2	224	(1, 0)
$1^*, 1^*, 7$	3, 2	16	$48 + 352$	256	2	21^2	256	(1, 0)
$1^*, 2^*, 3, 6$	3, 0, 2	40	$240 + 184$	192	2	21	144	(1, 0)
$1^*, 3$	0	8	$16 + 376$	384	4	21	336	(1, 0)
$1^*, 3$	2	8	$16 + 376$	256	4	21	384	(1, 0)
$1^*, 4$	0	8	$16 + 416$	384	4	21^2	304	(1, 0)
$1^*, 5$	0	8	$16 + 344$	192	2	21	464	(1, 0)
$1^*, 5$	0	8	$16 + 344$	192	2	21	400	(1, 0)
$1^*, 5$	2	8	$16 + 344$	128	2	21	576	(1, 0)
$1^*, 6$	2	8	$16 + 368$	384	4	21	400	(1, 0) \rightarrow (2, 0)
$1^*, 6$	0	8	$16 + 368$	256	4	21	416	(1, 0)
$1^*, 7$	0	8	$16 + 384$	384	2	21^2	400	(1, 0)
$2^*, 3$	2	32	$160 + 232$	768	4	21	192	(1, 0)
$2^*, 4$	2	32	$160 + 272$	768	4	21^2	160	(1, 0)
$2^*, 5$	0	32	$160 + 200$	192	2	21	272	(1, 0)
$2^*, 5$	2	32	$160 + 200$	384	2	21	256	(1, 0)
$2^*, 6$	0	32	$160 + 224$	768	4	21	224	(1, 0)
$2^*, 7$	0	32	$160 + 240$	384	2	21^2	208	(1, 0)
$^3 3, 3$	0		432	512	2	21	576	(1, 0)
$3, 3, 3$	2		472	4608	8	21	432	(1, 0) \rightarrow (2, 0)
$^1 3, 3, 7$	2		480	384	2	21^2	432	(1, 0)
$^1 3, 4, 5$	2		480	384	4	21^2	432	(1, 0)
$3, 4, 6$	0		504	1024	8	21^2	384	(1, 0)
$3, 5$	0		400	512	4	21	768	(1, 0)
$3, 5$	2		400	384	4	21	816	(1, 0)
$^3 3, 5, 6$	0		432	512	4	21	576	(1, 0)
$^4 3, 6$	2		424	384	4	21	624	(1, 0)
$3, 7$	0		440	1024	4	21^2	576	(1, 0)
$4, 4, 6$	0		544	2048	8	39^2	320	(1, 0)
$* 4, 4, 7$	2		560	1152	6	49^2	304	(1, 0)
$4, 5$	0		440	512	4	21^2	640	(1, 0)
$4, 5, 5$	2		448	768	4	21^2	560	(1, 0)
$^2 4, 6$	2		464	384	4	21^2	496	(1, 0)
$4, 7$	0		480	1024	4	39^2	448	(1, 0)
$5, 5$	0		368	512	2	21	1088	(1, 0)
$5, 5$	0		368	512	2	21	1024	(1, 0)
$5, 5$	2		368	384	2	21	1200	(1, 0)
$5, 5, 7$	2		416	384	2	21^2	688	(1, 0)
$5, 6$	0		392	512	4	21	896	(1, 0)
$5, 6$	2		392	384	4	21	880	(1, 0)
$^4 5, 6, 6$	2		424	384	2	21	624	(1, 0)
$5, 7$	0		408	512	2	21^2	832	(1, 0)
$6, 6$	0		416	1536	6	21	704	(1, 0)
$^2 6, 6, 7$	2		464	384	2	21^2	496	(1, 0)
$6, 7$	0		432	1024	4	21^2	640	(1, 0)
$7, 7$	0		448	2048	2	39^2	576	(1, 0)
$7, 7, 7$	2		496	2304	2	49^2	432	(1, 0)

47 relative graphs, $(r, c) = (49, 0)$; 43 absolute graphs, $(r, c) = (43, 0)$.

4. STRATA OF CODIMENSION 3

Clusters	Lines	Conics	$ G $	i_Ω	G_ω	T	(r, c)
4, 4, 4, 4, 6, 7, 7		800	15360	60	81^2	[4, 0, 40]	(1, 0)
4, 4, 4, 7, 7, 7		736	3072	16	75^2	[12, 0, 16]	(1, 0) \rightarrow (0, 1)
4, 4, 4, 6, 6, 7		704	768	12	65^2	[8, 4, 28]	(0, 1)
3, 3, 4, 4, 5, 6, 7		680	768	12	49^2	[12, 4, 20]	(0, 1) \rightarrow (0, 2)
3, 4, 4, 6, 6, 7		664	768	12	49^2	[4, 0, 60]	(1, 0) \rightarrow (2, 0)
7, 7, 7, 7, 7, 7		640	3072	2	75^2	[4, 0, 72]	(1, 0)
¹ 3, 3, 4, 6, 6, 7		624	256	4	39^2	[12, 4, 24]	(0, 2)
¹ 3, 4, 4, 5, 6, 6		624	256	8	39^2	[12, 4, 24]	(0, 2) \rightarrow (0, 4)
² 3, 3, 3, 7, 7, 7		616	384	2	49^2	[4, 0, 72]	(2, 0)
² 3, 4, 4, 5, 5, 7		616	384	6	49^2	[4, 0, 72]	(2, 0)
* 4, 4, 7, 7		608	768	6	65^2	[4, 0, 76]	(1, 0)
						[16, 4, 20]	(0, 1)
³ 3, 4, 4, 5, 5, 5, 6		608	512	8	39^2	[8, 0, 36]	(1, 0) \rightarrow (2, 0)
³ 3, 3, 3, 3, 7, 7		608	512	2	39^2	[8, 0, 36]	(1, 0)
⁴ 3, 3, 3, 4, 5, 5, 6		600	512	8	21^2	[12, 0, 24]	(1, 0) \rightarrow (4, 0)
⁴ 3, 3, 3, 3, 3, 7		600	512	4	21^2	[12, 0, 24]	(1, 0) \rightarrow (0, 1)
⁵ 4, 4, 6, 7		592	384	6	49^2	[12, 0, 28]	(0, 2)
⁵ 6, 6, 6, 7, 7, 7		592	384	2	49^2	[12, 0, 28]	(0, 2)
4, 4, 5, 5, 5, 7		584	384	6	49^2	[8, 0, 44]	(0, 1)
4, 7, 7, 7		576	1536	4	65^2	[12, 0, 28]	(2, 0)
3, 3, 4, 5, 5, 7		576	512	8	39^2	[12, 4, 28]	(0, 1) \rightarrow (0, 2)
⁶ 4, 4, 6, 6		576	512	8	39^2	[4, 0, 88]	(1, 0) \rightarrow (0, 1)
⁶ 6, 6, 6, 6, 7, 7		576	512	2	39^2	[4, 0, 88]	(1, 0)
1*, 1*, 2*, 3, 3, 4, 6, 6	48	336 + 240	256	4	21^2	[4, 0, 20]	(1, 0) \rightarrow (0, 1)
4, 4, 5, 7		568	384	6	49^2	[4, 0, 108]	(1, 0)
						[16, 4, 28]	(0, 1)
1*, 4, 4, 7	8	16 + 544	576	6	49^2	[4, 2, 52]	(2, 0)
1*, 1*, 1*, 4, 4, 7	24	96 + 464	192	6	49^2	[4, 2, 32]	(1, 0)
						[8, 2, 16]	(0, 1)
2*, 4, 4, 7	32	160 + 400	576	6	49^2	[4, 2, 28]	(1, 0)
⁷ 3, 3, 5, 6, 6, 7		552	128	2	21^2	[4, 0, 92]	(1, 0)
						[12, 4, 32]	(0, 1)
⁷ 3, 4, 5, 5, 6, 6		552	128	4	21^2	[4, 0, 92]	(1, 0) \rightarrow (0, 1)
						[12, 4, 32]	(0, 1) \rightarrow (0, 2)
⁷ 3, 3, 4, 5, 6		552	128	4	21^2	[4, 0, 92]	(1, 0) \rightarrow (0, 1)
						[12, 4, 32]	(0, 1) \rightarrow (0, 2)
4, 6, 6, 7		544	512	8	39^2	[16, 8, 28]	(0, 1) \rightarrow (0, 2)
1*, 4, 4, 6	8	16 + 528	512	8	39^2	[8, 4, 28]	(1, 0) \rightarrow (2, 0)
1*, 1*, 4, 4, 6	16	48 + 496	512	8	39^2	[4, 0, 40]	(1, 0) \rightarrow (0, 1)
1*, 1*, 2*, 3, 3, 6, 6, 7	48	336 + 208	64	2	21^2	[4, 2, 24]	(1, 0)
						[8, 2, 12]	(0, 1)
⁸ 3, 4, 6, 6		536	256	8	21^2	[8, 0, 52]	(1, 0) \rightarrow (0, 2)
						[20, 8, 24]	(0, 1) \rightarrow (0, 4)
⁸ 5, 6, 6, 6, 6, 7		536	256	2	21^2	[8, 0, 52]	(1, 0)
						[20, 8, 24]	(0, 1)
6, 7, 7, 7		528	1536	4	49^2	[12, 0, 40]	(1, 0) \rightarrow (2, 0)
⁹ 3, 3, 7, 7		528	256	2	39^2	[4, 0, 108]	(1, 0)
						[16, 4, 28]	(0, 1)
⁹ 3, 4, 5, 7		528	256	4	39^2	[4, 0, 108]	(1, 0)

									[16, 4, 28]	(0, 1)
¹⁰	3, 3, 4, 5, 5		528	256	4	21^2			[4, 0, 104]	(1, 0) → (0, 1)
									[12, 4, 36]	(0, 1) → (0, 2)
¹⁰	3, 3, 5, 5, 6, 7		528	256	4	21^2			[4, 0, 104]	(1, 0) → (2, 0)
									[12, 4, 36]	(0, 1) → (0, 2)
	$1^*, 1^*, 1^*, 1^*, 4, 7, 7$	32	160 + 368	512	4	56^2			[8, 4, 16]	(1, 0)
	3, 4, 5, 5, 6		520	512	8	21^2			[20, 0, 24]	(1, 0) → (4, 0)
	5, 5, 5, 7, 7, 7		520	384	2	49^2			[12, 0, 40]	(0, 2)
¹¹	3, 3, 3, 7		520	128	2	21^2			[4, 0, 108]	(1, 0)
									[16, 4, 28]	(0, 1)
¹¹	3, 4, 5, 5, 6		520	128	4	21^2			[4, 0, 108]	(1, 0) → (0, 1)
									[16, 4, 28]	(0, 1) → (0, 2)
¹¹	3, 5, 5, 6, 6, 7		520	128	2	21^2			[4, 0, 108]	(1, 0)
									[16, 4, 28]	(0, 1)
	4, 5, 5, 5, 5, 7		512	512	4	39^2			[16, 0, 28]	(1, 0)
¹²	3, 3, 3, 3		512	384	2	21			[12, 0, 36]	(1, 0) → (2, 0)
¹²	3, 3, 3, 5, 6		512	384	6	21			[12, 0, 36]	(1, 0) → (2, 2)
¹²	3, 5, 5, 5, 6, 6, 6		512	384	2	21			[12, 0, 36]	(1, 0) → (2, 0)
	3, 4, 5, 6		512	256	8	21^2			[24, 12, 28]	(0, 1) → (0, 4)
¹³	6, 6, 7, 7		512	256	2	39^2			[4, 0, 124]	(1, 0)
									[20, 8, 28]	(0, 1)
¹³	4, 6, 7		512	256	4	39^2			[4, 0, 124]	(1, 0)
									[20, 8, 28]	(0, 1)
¹⁴	3, 4, 5, 6		512	128	4	21^2			[8, 4, 60]	(0, 1) → (0, 2)
									[12, 4, 40]	(0, 2) → (0, 4)
¹⁴	5, 5, 6, 6, 6, 7		512	128	2	21^2			[8, 4, 60]	(0, 1)
									[12, 4, 40]	(0, 2)
¹⁴	3, 3, 6, 7		512	128	2	21^2			[8, 4, 60]	(0, 1)
									[12, 4, 40]	(0, 2)
	$1^*, 2^*, 3, 4, 5, 6$	40	240 + 272	192	4	21^2			[4, 2, 28]	(1, 0) → (0, 1)
	5, 7, 7, 7		504	768	2	49^2			[4, 0, 156]	(1, 0)
									[12, 0, 52]	(1, 0)
¹⁵	4, 5, 6, 6		504	256	4	21^2			[4, 0, 120]	(2, 0) → (0, 2)
¹⁵	3, 6, 6, 7		504	256	4	21^2			[4, 0, 120]	(2, 0) → (4, 0)
	$1^*, 3, 4, 6$	8	16 + 488	256	8	21^2			[12, 4, 20]	(0, 1) → (0, 4)
	$1^*, 3, 4, 6$	8	16 + 488	256	8	21^2			[4, 0, 60]	(1, 0) → (0, 2)
¹⁶	$1^*, 1^*, 3, 4, 6$	16	48 + 456	256	4	21^2			[8, 0, 24]	(1, 0) → (0, 1)
¹⁶	$1^*, 1^*, 3, 4, 6$	16	48 + 456	256	4	21^2			[8, 0, 24]	(1, 0) → (0, 1)
	$1^*, 2^*, 3, 3, 3, 6$	40	240 + 264	576	6	21^3			[12, 6, 12]	(1, 0) → (2, 0)
	4, 5, 5, 7		496	512	4	39^2			[12, 4, 48]	(0, 1)
									[20, 0, 28]	(1, 0)
	4, 5, 5, 7		496	256	4	39^2			[24, 12, 28]	(0, 2)
¹⁷	6, 6, 6, 7		496	256	4	21^2			[20, 4, 28]	(0, 1) → (0, 2)
¹⁷	4, 6, 6		496	256	4	21^2			[20, 4, 28]	(0, 1) → (0, 2)
¹⁸	3, 3, 5, 5, 7		496	128	2	21^2			[12, 4, 44]	(0, 2)
¹⁸	3, 4, 5, 5, 5		496	128	4	21^2			[12, 4, 44]	(0, 2) → (0, 4)
	$1^*, 7, 7, 7$	8	16 + 480	1152	2	49^2			[12, 6, 28]	(1, 0)
	$1^*, 1^*, 1^*, 7, 7, 7$	24	96 + 400	192	2	49^2			[4, 2, 40]	(2, 0)
									[12, 6, 16]	(0, 1)
	$2^*, 7, 7, 7$	32	160 + 336	384	2	49^2			[4, 2, 40]	(1, 0)
									[12, 6, 16]	(1, 0)
¹⁹	3, 4, 5, 5		488	128	4	21^2			[12, 4, 48]	(0, 2) → (0, 4)
									[20, 0, 28]	(0, 1) → (0, 2)

¹⁹	3, 3, 5, 7		488	128	2	21^2	[12, 4, 48]	(0, 2)
							[20, 0, 28]	(0, 1)
²⁰	3, 4, 5, 5		488	128	4	21^2	[8, 0, 76]	(0, 1) → (0, 2)
							[12, 4, 52]	(0, 2) → (0, 4)
²⁰	3, 3, 5, 7		488	128	2	21^2	[8, 0, 76]	(0, 1)
							[12, 4, 52]	(0, 2)
	3, 3, 3, 5		480	512	8	21	[12, 0, 48]	(1, 0) → (4, 2)
	5, 5, 5, 5, 7, 7		480	512	2	39^2	[4, 0, 136]	(1, 0)
							[8, 0, 68]	(1, 0)
²¹	5, 5, 6, 6, 7		480	128	2	21^2	[8, 4, 76]	(0, 1)
²¹	4, 5, 5, 6		480	128	4	21^2	[8, 4, 76]	(0, 1) → (0, 2)
	1^* , 4, 7	8	16 + 464	256	4	39^2	[4, 0, 76]	(1, 0)
							[16, 4, 20]	(0, 1)
²²	1^* , 3, 4, 5	8	16 + 464	192	4	21^2	[4, 2, 60]	(1, 0) → (0, 1)
							[12, 2, 20]	(0, 1) → (0, 2)
²²	1^* , 3, 3, 7	8	16 + 464	192	2	21^2	[4, 2, 60]	(1, 0)
							[12, 2, 20]	(0, 1)
²³	1^* , 3, 4, 5	8	16 + 464	64	4	21^2	[4, 2, 72]	(1, 0) → (0, 1)
							[8, 2, 36]	(0, 1) → (0, 2)
							[12, 2, 24]	(0, 1) → (0, 2)
							[16, 6, 20]	(0, 1) → (0, 2)
²³	1^* , 3, 3, 7	8	16 + 464	64	2	21^2	[4, 2, 72]	(1, 0)
							[8, 2, 36]	(0, 1)
							[12, 2, 24]	(0, 1)
							[16, 6, 20]	(0, 1)
	1^* , 1^* , 4, 7	16	48 + 432	512	4	39^2	[4, 0, 56]	(1, 0)
							[8, 0, 28]	(1, 0)
	1^* , 1^* , 4, 7	16	48 + 432	256	4	39^2	[12, 0, 16]	(0, 1)
²⁴	1^* , 1^* , 3, 3, 7	16	48 + 432	64	2	21^2	[4, 2, 48]	(1, 0)
							[8, 2, 24]	(0, 1)
							[12, 2, 16]	(0, 1)
²⁴	1^* , 1^* , 3, 4, 5	16	48 + 432	64	4	21^2	[4, 2, 48]	(1, 0) → (0, 1)
							[8, 2, 24]	(0, 1) → (0, 2)
							[12, 2, 16]	(0, 1) → (0, 2)
	2^* , 4, 7	32	160 + 320	256	4	39^2	[8, 0, 20]	(0, 1)
²⁵	2^* , 3, 3, 7	32	160 + 320	192	2	21^2	[12, 2, 12]	(0, 1)
²⁵	2^* , 3, 4, 5	32	160 + 320	192	4	21^2	[12, 2, 12]	(0, 1) → (0, 2)
²⁶	3, 6, 7		472	256	4	21^2	[4, 0, 156]	(1, 0) → (2, 0)
							[12, 0, 52]	(1, 0) → (0, 1)
²⁶	5, 6, 6, 7		472	256	2	21^2	[4, 0, 156]	(1, 0)
							[12, 0, 52]	(1, 0)
²⁷	5, 6, 6, 7		472	128	2	21^2	[24, 0, 28]	(0, 2)
²⁷	4, 5, 6		472	128	4	21^2	[24, 0, 28]	(0, 2) → (0, 4)
²⁸	5, 6, 6, 7		472	128	2	21^2	[4, 0, 172]	(1, 0)
							[16, 4, 44]	(0, 1)
²⁸	4, 5, 6		472	128	4	21^2	[4, 0, 172]	(1, 0) → (0, 1)
							[16, 4, 44]	(0, 1) → (0, 2)
²⁹	3, 5, 5, 6, 6		472	128	4	21	[4, 0, 140]	(1, 0) → (0, 2)
							[16, 4, 36]	(0, 1) → (0, 4)
²⁹	3, 3, 5, 6		472	128	4	21	[4, 0, 140]	(1, 0) → (0, 2)
							[16, 4, 36]	(0, 1) → (0, 4)
	1^* , 3, 3, 3	8	16 + 456	256	8	21	[12, 6, 24]	(1, 0) → (4, 2)
	1^* , 2^* , 3, 6, 7	40	240 + 232	128	2	21^2	[4, 0, 36]	(2, 0)

	$1^*, 2^*, 3, 3, 5, 6$	40	$240 + 232$	128	4	21	$[4, 0, 32]$	$(1, 0) \rightarrow (0, 2)$
	$4, 5, 5, 5, 5$		464	512	4	21^2	$[12, 0, 56]$	$(1, 0) \rightarrow (2, 0)$
	$3, 5, 6, 6$		464	512	8	21	$[12, 0, 48]$	$(1, 0) \rightarrow (4, 2)$
	$5, 5, 7, 7$		464	256	2	39^2	$[4, 0, 172]$	$(1, 0)$
							$[16, 4, 44]$	$(0, 1)$
³⁰	$3, 3, 6$		464	128	2	21	$[4, 0, 152]$	$(1, 0) \rightarrow (0, 1)$
							$[24, 8, 28]$	$(0, 1) \rightarrow (0, 2)$
³⁰	$3, 5, 6, 6$		464	128	4	21	$[4, 0, 152]$	$(1, 0) \rightarrow (0, 2)$
							$[24, 8, 28]$	$(0, 1) \rightarrow (0, 4)$
³⁰	$5, 5, 6, 6, 6$		464	128	2	21	$[4, 0, 152]$	$(1, 0) \rightarrow (0, 1)$
							$[24, 8, 28]$	$(0, 1) \rightarrow (0, 2)$
³¹	$1^*, 6, 6, 7$	8	$16 + 448$	192	2	21^2	$[4, 2, 76]$	$(2, 0)$
³¹	$1^*, 4, 6$	8	$16 + 448$	192	4	21^2	$[4, 2, 76]$	$(2, 0) \rightarrow (0, 2)$
³²	$1^*, 4, 6$	8	$16 + 448$	64	4	21^2	$[4, 2, 80]$	$(1, 0) \rightarrow (0, 1)$
							$[8, 2, 40]$	$(0, 1) \rightarrow (0, 2)$
							$[16, 2, 20]$	$(0, 1) \rightarrow (0, 2)$
³²	$1^*, 6, 6, 7$	8	$16 + 448$	64	2	21^2	$[4, 2, 80]$	$(1, 0)$
							$[8, 2, 40]$	$(0, 1)$
							$[16, 2, 20]$	$(0, 1)$
³³	$1^*, 1^*, 6, 6, 7$	16	$48 + 416$	64	2	21^2	$[4, 2, 56]$	$(2, 0)$
							$[16, 6, 16]$	$(0, 1)$
³³	$1^*, 1^*, 4, 6$	16	$48 + 416$	64	4	21^2	$[4, 2, 56]$	$(2, 0) \rightarrow (0, 2)$
							$[16, 6, 16]$	$(0, 1) \rightarrow (0, 2)$
³⁴	$2^*, 4, 6$	32	$160 + 304$	192	4	21^2	$[4, 2, 44]$	$(1, 0) \rightarrow (0, 1)$
³⁴	$2^*, 6, 6, 7$	32	$160 + 304$	192	2	21^2	$[4, 2, 44]$	$(1, 0)$
	$1^*, 2^*, 3, 5, 6, 6$	40	$240 + 224$	192	4	21	$[4, 2, 36]$	$(1, 0) \rightarrow (0, 2)$
	$1^*, 2^*, 3, 5, 6, 6$	40	$240 + 224$	128	4	21	$[8, 4, 20]$	$(1, 0) \rightarrow (0, 2)$
³⁵	$3, 6, 6$		456	256	4	21	$[8, 0, 84]$	$(1, 0) \rightarrow (4, 0)$
³⁵	$5, 6, 6, 6$		456	256	4	21	$[8, 0, 84]$	$(1, 0) \rightarrow (0, 2)$
	$3, 5, 5, 7$		456	256	4	21^2	$[4, 0, 168]$	$(2, 0) \rightarrow (4, 0)$
	$3, 5, 5, 7$		456	256	4	21^2	$[4, 0, 156]$	$(1, 0) \rightarrow (2, 0)$
							$[12, 0, 52]$	$(1, 0) \rightarrow (0, 1)$
	$4, 5, 5, 5$		456	128	4	21^2	$[4, 0, 172]$	$(1, 0) \rightarrow (0, 1)$
							$[16, 4, 44]$	$(0, 1) \rightarrow (0, 2)$
	$5, 5, 6, 7$		448	256	4	21^2	$[28, 8, 28]$	$(0, 1) \rightarrow (0, 2)$
	$5, 5, 6, 7$		448	256	4	21^2	$[20, 8, 40]$	$(0, 1) \rightarrow (0, 2)$
	$4, 5, 5$		448	256	4	21^2	$[12, 0, 76]$	$(2, 0) \rightarrow (4, 0)$
	$3, 5, 7$		448	256	4	21^2	$[4, 0, 204]$	$(1, 0) \rightarrow (2, 0)$
							$[16, 4, 52]$	$(0, 1) \rightarrow (0, 2)$
	$1^*, 7, 7$	8	$16 + 432$	512	2	39^2	$[4, 0, 100]$	$(1, 0)$
	$1^*, 4, 5, 5$	8	$16 + 432$	192	4	21^2	$[4, 2, 68]$	$(1, 0) \rightarrow (0, 1)$
	$1^*, 4, 5, 5$	8	$16 + 432$	128	4	21^2	$[4, 2, 96]$	$(1, 0) \rightarrow (0, 1)$
							$[16, 2, 24]$	$(0, 1) \rightarrow (0, 2)$
							$[20, 10, 24]$	$(1, 0) \rightarrow (2, 0)$
	$1^*, 1^*, 7, 7$	16	$48 + 400$	256	2	39^2	$[4, 0, 64]$	$(2, 0)$
	$1^*, 1^*, 4, 5, 5$	16	$48 + 400$	256	4	21^2	$[4, 0, 52]$	$(1, 0) \rightarrow (0, 1)$
	$1^*, 1^*, 3, 5, 7$	16	$48 + 400$	256	4	21^2	$[4, 0, 48]$	$(1, 0) \rightarrow (2, 0)$
	$1^*, 1^*, 4, 5, 5$	16	$48 + 400$	128	4	21^2	$[8, 2, 32]$	$(0, 1) \rightarrow (0, 2)$
	$2^*, 7, 7$	32	$160 + 288$	512	2	39^2	$[4, 0, 52]$	$(1, 0)$
	$2^*, 4, 5, 5$	32	$160 + 288$	192	4	21^2	$[4, 2, 44]$	$(1, 0) \rightarrow (0, 1)$
	$5, 6, 7$		440	256	4	21^2	$[28, 4, 32]$	$(0, 1) \rightarrow (0, 2)$
³⁶	$3, 5, 5, 6$		440	128	4	21	$[4, 0, 200]$	$(1, 0) \rightarrow (0, 2)$
							$[24, 8, 36]$	$(0, 1) \rightarrow (0, 4)$

³⁶ 3, 3, 5	440	128	2	21	[4, 0, 200]	(1, 0) → (0, 1)
					[24, 8, 36]	(0, 1) → (0, 2)
³⁷ 3, 5, 5, 6	440	64	2	21	[4, 0, 188]	(1, 0) → (0, 1)
					[12, 4, 64]	(0, 1) → (0, 2)
					[28, 12, 32]	(0, 1) → (0, 2)
³⁷ 3, 3, 5	440	64	2	21	[4, 0, 188]	(1, 0) → (0, 1)
					[12, 4, 64]	(0, 1) → (0, 2)
					[28, 12, 32]	(0, 1) → (0, 2)
³⁷ 3, 5, 5, 6	440	64	2	21	[4, 0, 188]	(1, 0) → (0, 1)
					[12, 4, 64]	(0, 1) → (0, 2)
					[28, 12, 32]	(0, 1) → (0, 2)
1*, 3, 7	8	16 + 424	256	4	21 ²	[4, 0, 96] (2, 0) → (4, 0)
1*, 3, 7	8	16 + 424	256	4	21 ²	[4, 0, 84] (2, 0) → (4, 0)
1*, 4, 5	8	16 + 424	128	4	21 ²	[8, 0, 44] (0, 1) → (0, 2)
1*, 4, 5	8	16 + 424	128	4	21 ²	[4, 0, 108] (1, 0) → (0, 1)
					[16, 4, 28]	(0, 1) → (0, 2)
1*, 4, 5	8	16 + 424	128	4	21 ²	[4, 0, 72] (2, 0) → (0, 2)
³⁸ 1*, 1*, 4, 5	16	48 + 392	128	2	21 ²	[16, 8, 24] (0, 2)
³⁸ 1*, 1*, 4, 5	16	48 + 392	128	2	21 ²	[16, 8, 24] (0, 2)
1*, 1*, 3, 7	16	48 + 392	128	4	21 ²	[16, 4, 16] (0, 1) → (0, 2)
2*, 3, 7	32	160 + 280	256	4	21 ²	[4, 0, 48] (1, 0) → (2, 0)
2*, 4, 5	32	160 + 280	128	4	21 ²	[4, 0, 52] (2, 0) → (0, 2)
5, 5, 5, 5, 7		432	256	2	21 ²	[12, 0, 64] (2, 0)
5, 5, 5, 5, 7		432	256	2	21 ²	[8, 0, 100] (1, 0)
					[12, 4, 68]	(0, 1)
³⁹ 3, 5, 6		432	128	4	21	[28, 4, 28] (0, 1) → (0, 4)
³⁹ 5, 5, 6, 6		432	128	2	21	[28, 4, 28] (0, 1) → (0, 2)
⁴⁰ 3, 5, 6		432	128	4	21	[12, 0, 68] (1, 0) → (0, 2)
					[20, 8, 44]	(0, 1) → (0, 4)
⁴⁰ 5, 5, 6, 6		432	128	2	21	[12, 0, 68] (1, 0) → (2, 0)
					[20, 8, 44]	(0, 1) → (0, 2)
⁴¹ 5, 5, 6, 6		432	64	2	21	[8, 4, 108] (0, 1) → (0, 2)
					[12, 4, 72]	(0, 2) → (0, 4)
⁴¹ 3, 5, 6		432	64	2	21	[8, 4, 108] (0, 1) → (0, 2)
					[12, 4, 72]	(0, 2) → (0, 4)
⁴¹ 3, 5, 6		432	64	2	21	[8, 4, 108] (0, 1) → (0, 2)
					[12, 4, 72]	(0, 2) → (0, 4)
1*, 6, 7	8	16 + 416	256	4	21 ²	[20, 0, 20] (0, 1) → (0, 2)
1*, 6, 7	8	16 + 416	256	4	21 ²	[4, 0, 104] (1, 0) → (2, 0)
					[12, 4, 36]	(0, 1) → (0, 2)
⁴² 1*, 3, 3	8	16 + 416	128	2	21	[4, 0, 68] (1, 0) → (0, 1)
					[8, 4, 36]	(1, 0) → (2, 0)
⁴² 1*, 3, 5, 6	8	16 + 416	128	4	21	[4, 0, 68] (1, 0) → (0, 2)
					[8, 4, 36]	(1, 0) → (0, 2)
⁴³ 1*, 3, 5, 6	8	16 + 416	64	2	21	[8, 4, 48] (1, 0) → (0, 1)
					[16, 4, 24]	(0, 1) → (0, 2)
⁴³ 1*, 3, 5, 6	8	16 + 416	64	2	21	[8, 4, 48] (1, 0) → (0, 1)
					[16, 4, 24]	(0, 1) → (0, 2)
⁴³ 1*, 3, 3	8	16 + 416	64	1	21	[8, 4, 48] (1, 0)
					[16, 4, 24]	(0, 1)
⁴³ 1*, 3, 3	8	16 + 416	64	1	21	[8, 4, 48] (1, 0)
					[16, 4, 24]	(0, 1)
⁴⁴ 1*, 3, 5, 6	8	16 + 416	64	2	21	[4, 0, 80] (2, 0) → (0, 2)

						[16, 0, 20]	(0, 1) → (0, 2)
⁴⁴	$1^*, 3, 5, 6$	8	16 + 416	64	2	21	[4, 0, 80] (2, 0) → (0, 2)
							[16, 0, 20] (0, 1) → (0, 2)
⁴⁴	$1^*, 3, 3$	8	16 + 416	64	2	21	[4, 0, 80] (2, 0) → (0, 2)
							[16, 0, 20] (0, 1) → (0, 2)
	$1^*, 1^*, 6, 7$	16	48 + 384	256	4	21^2	[4, 0, 60] (1, 0) → (2, 0)
	$1^*, 1^*, 6, 7$	16	48 + 384	128	4	21^2	[8, 0, 32] (0, 1) → (0, 2)
	$2^*, 6, 7$	32	160 + 272	256	4	21^2	[12, 4, 20] (0, 1) → (0, 2)
	$1^*, 2^*, 3, 5, 6$	40	240 + 192	64	2	21	[4, 0, 44] (1, 0) → (0, 1)
							[12, 4, 16] (0, 1) → (0, 2)
	$1^*, 2^*, 3, 5, 6$	40	240 + 192	32	2	21	[4, 2, 48] (1, 0) → (0, 1)
							[8, 2, 24] (0, 1) → (0, 2)
							[12, 2, 16] (0, 1) → (0, 2)
	$5, 5, 5, 7$		424	128	2	21^2	[28, 4, 32] (0, 2)
	$5, 5, 5, 7$		424	128	2	21^2	[12, 4, 84] (0, 2)
							[24, 8, 44] (0, 2)
⁴⁵	$5, 6, 6$		424	128	2	21	[8, 0, 116] (1, 0) → (2, 0)
⁴⁵	$5, 6, 6$		424	128	4	21	[8, 0, 116] (1, 0) → (0, 2)
	$5, 5, 5, 7$		424	128	2	21^2	[4, 0, 204] (2, 0)
							[16, 4, 52] (0, 2)
⁴⁶	$1^*, 5, 6, 6$	8	16 + 408	192	2	21	[4, 2, 76] (1, 0) → (0, 1)
⁴⁶	$1^*, 3, 6$	8	16 + 408	192	4	21	[4, 2, 76] (1, 0) → (0, 2)
⁴⁷	$1^*, 5, 6, 6$	8	16 + 408	64	2	21	[8, 2, 44] (0, 1) → (0, 2)
							[12, 6, 32] (1, 0) → (2, 0)
⁴⁷	$1^*, 3, 6$	8	16 + 408	64	4	21	[8, 2, 44] (0, 1) → (0, 4)
							[12, 6, 32] (1, 0) → (0, 2)
⁴⁸	$1^*, 3, 6$	8	16 + 408	32	2	21	[4, 2, 96] (2, 0) → (0, 2)
							[16, 2, 24] (0, 2) → (0, 4)
							[20, 10, 24] (0, 1) → (0, 2)
⁴⁸	$1^*, 3, 6$	8	16 + 408	32	2	21	[4, 2, 96] (2, 0) → (0, 2)
							[16, 2, 24] (0, 2) → (0, 4)
							[20, 10, 24] (0, 1) → (0, 2)
⁴⁸	$1^*, 5, 6, 6$	8	16 + 408	32	2	21	[4, 2, 96] (2, 0) → (0, 2)
							[16, 2, 24] (0, 2) → (0, 4)
							[20, 10, 24] (0, 1) → (0, 2)
⁴⁹	$2^*, 3, 6$	32	160 + 264	192	4	21	[12, 6, 20] (1, 0) → (0, 2)
⁴⁹	$2^*, 5, 6, 6$	32	160 + 264	192	2	21	[12, 6, 20] (1, 0) → (2, 0)
	$5, 5, 7$		416	256	2	21^2	[12, 0, 100] (1, 0)
							[28, 12, 48] (0, 1)
	$1^*, 5, 5, 7$	8	16 + 400	192	2	21^2	[12, 6, 28] (0, 1)
⁵⁰	$1^*, 6, 6$	8	16 + 400	192	3	21	[8, 4, 56] (1, 0) → (1, 1)
⁵⁰	$1^*, 6, 6$	8	16 + 400	192	3	21	[8, 4, 56] (1, 0) → (1, 1)
	$1^*, 5, 5, 7$	8	16 + 400	192	2	21^2	[4, 2, 92] (2, 0)
⁵¹	$1^*, 6, 6$	8	16 + 400	128	2	21	[4, 0, 100] (1, 0) → (0, 1)
⁵¹	$1^*, 6, 6$	8	16 + 400	128	4	21	[4, 0, 100] (1, 0) → (0, 2)
	$1^*, 5, 5, 7$	8	16 + 400	64	2	21^2	[4, 2, 120] (2, 0)
							[8, 2, 60] (0, 2)
							[16, 6, 32] (0, 2)
	$1^*, 1^*, 5, 5, 7$	16	48 + 368	256	2	21^2	[16, 8, 20] (1, 0)
	$1^*, 1^*, 5, 5, 7$	16	48 + 368	64	2	21^2	[4, 2, 72] (1, 0)
							[8, 2, 36] (0, 1)
							[12, 2, 24] (0, 1)
							[16, 6, 20] (0, 1)

$1^*, 1^*, 5, 5, 7$	16	$48 + 368$	64	2	21^2	$[4, 2, 64]$	$(2, 0)$
						$[16, 2, 16]$	$(0, 1)$
$2^*, 5, 5, 7$	32	$160 + 256$	192	2	21^2	$[4, 2, 52]$	$(2, 0)$
$2^*, 5, 5, 7$	32	$160 + 256$	64	2	21^2	$[8, 2, 28]$	$(0, 2)$
$3, 5, 5$		408	256	4	21	$[16, 0, 60]$	$(1, 0) \rightarrow (4, 0)$
$3, 5, 5$		408	256	4	21	$[12, 0, 96]$	$(2, 0) \rightarrow (8, 0)$
$3, 5, 5$		408	256	4	21	$[12, 0, 84]$	$(2, 0) \rightarrow (4, 2)$
$3, 5, 5$		408	256	4	21	$[8, 0, 132]$	$(1, 0) \rightarrow (4, 0)$
						$[24, 0, 44]$	$(1, 0) \rightarrow (0, 2)$
$3, 5, 5$		408	128	4	21	$[12, 4, 92]$	$(0, 1) \rightarrow (0, 4)$
						$[28, 12, 44]$	$(0, 1) \rightarrow (0, 4)$
⁵² $3, 5, 5$		408	64	2	21	$[4, 0, 236]$	$(1, 0) \rightarrow (0, 1)$
						$[12, 4, 80]$	$(0, 1) \rightarrow (0, 2)$
						$[16, 4, 60]$	$(0, 1) \rightarrow (0, 2)$
						$[20, 4, 48]$	$(0, 1) \rightarrow (0, 2)$
						$[28, 8, 36]$	$(0, 1) \rightarrow (0, 2)$
⁵² $3, 5, 5$		408	64	2	21	$[4, 0, 236]$	$(1, 0) \rightarrow (0, 1)$
						$[12, 4, 80]$	$(0, 1) \rightarrow (0, 2)$
						$[16, 4, 60]$	$(0, 1) \rightarrow (0, 2)$
						$[20, 4, 48]$	$(0, 1) \rightarrow (0, 2)$
						$[28, 8, 36]$	$(0, 1) \rightarrow (0, 2)$
$1^*, 5, 7$	8	$16 + 392$	128	2	21^2	$[8, 4, 52]$	$(0, 1)$
$1^*, 5, 7$	8	$16 + 392$	128	2	21^2	$[4, 0, 144]$	$(2, 0)$
						$[16, 0, 36]$	$(0, 1)$
$1^*, 5, 7$	8	$16 + 392$	128	2	21^2	$[4, 0, 116]$	$(2, 0)$
						$[20, 4, 24]$	$(0, 2)$
$1^*, 1^*, 5, 7$	16	$48 + 360$	64	2	21^2	$[8, 4, 48]$	$(0, 1)$
						$[16, 4, 24]$	$(0, 2)$
$2^*, 5, 7$	32	$160 + 248$	128	2	21^2	$[16, 8, 20]$	$(0, 1)$
$2^*, 5, 7$	32	$160 + 248$	128	2	21^2	$[4, 0, 68]$	$(2, 0)$
						$[8, 4, 36]$	$(0, 1)$
$5, 5, 6$		400	256	4	21	$[28, 0, 40]$	$(1, 0) \rightarrow (0, 2)$
$5, 5, 6$		400	256	4	21	$[16, 0, 60]$	$(1, 0) \rightarrow (4, 0)$
$5, 5, 6$		400	256	4	21	$[12, 0, 104]$	$(1, 0) \rightarrow (4, 0)$
$5, 5, 6$		400	128	4	21	$[12, 4, 104]$	$(0, 2) \rightarrow (0, 8)$
⁵³ $5, 5, 6$		400	64	2	21	$[4, 0, 268]$	$(1, 0) \rightarrow (0, 1)$
						$[16, 4, 68]$	$(0, 1) \rightarrow (0, 2)$
⁵³ $5, 5, 6$		400	64	2	21	$[4, 0, 268]$	$(1, 0) \rightarrow (0, 1)$
						$[16, 4, 68]$	$(0, 1) \rightarrow (0, 2)$
$1^*, 3, 5$	8	$16 + 384$	128	4	21	$[20, 4, 20]$	$(0, 1) \rightarrow (0, 4)$
$1^*, 3, 5$	8	$16 + 384$	128	4	21	$[12, 0, 36]$	$(1, 1) \rightarrow (0, 6)$
⁵⁴ $1^*, 3, 5$	8	$16 + 384$	96	2	21	$[4, 2, 84]$	$(1, 0) \rightarrow (0, 1)$
						$[12, 2, 28]$	$(0, 1) \rightarrow (0, 2)$
⁵⁴ $1^*, 3, 5$	8	$16 + 384$	96	2	21	$[4, 2, 84]$	$(1, 0) \rightarrow (0, 1)$
						$[12, 2, 28]$	$(0, 1) \rightarrow (0, 2)$
$1^*, 3, 5$	8	$16 + 384$	64	4	21	$[24, 6, 24]$	$(0, 3) \rightarrow (0, 12)$
⁵⁵ $1^*, 3, 5$	8	$16 + 384$	64	2	21	$[16, 0, 32]$	$(0, 2) \rightarrow (0, 4)$
⁵⁵ $1^*, 3, 5$	8	$16 + 384$	64	2	21	$[16, 0, 32]$	$(0, 2) \rightarrow (0, 4)$
$1^*, 3, 5$	8	$16 + 384$	64	4	21	$[8, 2, 56]$	$(0, 1) \rightarrow (0, 4)$
						$[20, 6, 24]$	$(0, 1) \rightarrow (0, 4)$
$1^*, 3, 5$	8	$16 + 384$	64	4	21	$[4, 2, 120]$	$(1, 0) \rightarrow (0, 2)$
						$[8, 2, 60]$	$(0, 1) \rightarrow (0, 4)$
						$[16, 6, 32]$	$(0, 1) \rightarrow (0, 4)$

$1^*, 3, 5$	8	$16 + 384$	64	4	21	$[4, 2, 88]$	$(1, 0) \rightarrow (0, 2)$
						$[16, 6, 24]$	$(0, 1) \rightarrow (0, 4)$
⁵⁶ $1^*, 3, 5$	8	$16 + 384$	64	2	21	$[4, 0, 92]$	$(1, 0) \rightarrow (0, 1)$
						$[12, 4, 32]$	$(0, 1) \rightarrow (0, 2)$
⁵⁶ $1^*, 3, 5$	8	$16 + 384$	64	2	21	$[4, 0, 92]$	$(1, 0) \rightarrow (0, 1)$
						$[12, 4, 32]$	$(0, 1) \rightarrow (0, 2)$
$2^*, 3, 5$	32	$160 + 240$	128	4	21	$[12, 0, 20]$	$(1, 0) \rightarrow (0, 2)$
⁵⁷ $2^*, 3, 5$	32	$160 + 240$	96	2	21	$[4, 2, 60]$	$(1, 0) \rightarrow (0, 1)$
						$[12, 2, 20]$	$(0, 1) \rightarrow (0, 2)$
⁵⁷ $2^*, 3, 5$	32	$160 + 240$	96	2	21	$[4, 2, 60]$	$(1, 0) \rightarrow (0, 1)$
						$[12, 2, 20]$	$(0, 1) \rightarrow (0, 2)$
$1^*, 5, 6$	8	$16 + 376$	192	4	21	$[4, 2, 116]$	$(1, 0) \rightarrow (0, 2)$
$1^*, 5, 6$	8	$16 + 376$	128	4	21	$[20, 0, 24]$	$(0, 1) \rightarrow (0, 4)$
$1^*, 5, 6$	8	$16 + 376$	128	4	21	$[4, 0, 140]$	$(1, 0) \rightarrow (0, 2)$
						$[16, 4, 36]$	$(0, 1) \rightarrow (0, 4)$
$1^*, 5, 6$	8	$16 + 376$	128	4	21	$[4, 0, 88]$	$(1, 0) \rightarrow (0, 2)$
⁵⁸ $1^*, 5, 6$	8	$16 + 376$	64	2	21	$[8, 0, 72]$	$(2, 1) \rightarrow (0, 4)$
⁵⁸ $1^*, 5, 6$	8	$16 + 376$	64	2	21	$[8, 0, 72]$	$(2, 1) \rightarrow (0, 4)$
$1^*, 5, 6$	8	$16 + 376$	64	4	21	$[4, 2, 144]$	$(1, 0) \rightarrow (0, 2)$
						$[12, 2, 48]$	$(0, 1) \rightarrow (0, 4)$
						$[16, 2, 36]$	$(0, 1) \rightarrow (0, 4)$
$1^*, 5, 6$	8	$16 + 376$	64	4	21	$[4, 2, 136]$	$(1, 0) \rightarrow (0, 2)$
						$[16, 6, 36]$	$(0, 1) \rightarrow (0, 4)$
⁵⁹ $1^*, 5, 6$	8	$16 + 376$	64	2	21	$[4, 0, 100]$	$(2, 0) \rightarrow (0, 2)$
⁵⁹ $1^*, 5, 6$	8	$16 + 376$	64	2	21	$[4, 0, 100]$	$(2, 0) \rightarrow (0, 2)$
⁶⁰ $1^*, 5, 6$	8	$16 + 376$	32	2	21	$[4, 2, 104]$	$(1, 0) \rightarrow (0, 1)$
						$[8, 2, 52]$	$(0, 1) \rightarrow (0, 2)$
						$[16, 6, 28]$	$(0, 1) \rightarrow (0, 2)$
⁶⁰ $1^*, 5, 6$	8	$16 + 376$	32	2	21	$[4, 2, 104]$	$(1, 0) \rightarrow (0, 1)$
						$[8, 2, 52]$	$(0, 1) \rightarrow (0, 2)$
						$[16, 6, 28]$	$(0, 1) \rightarrow (0, 2)$
$2^*, 5, 6$	32	$160 + 232$	128	4	21	$[8, 0, 36]$	$(1, 0) \rightarrow (0, 2)$
⁶¹ $2^*, 5, 6$	32	$160 + 232$	96	2	21	$[4, 2, 68]$	$(1, 0) \rightarrow (0, 1)$
⁶¹ $2^*, 5, 6$	32	$160 + 232$	96	2	21	$[4, 2, 68]$	$(1, 0) \rightarrow (0, 1)$
$5, 5, 5$		376	384	2	21	$[12, 0, 144]$	$(2, 0) \rightarrow (4, 0)$
$5, 5, 5$		376	128	2	21	$[12, 4, 132]$	$(0, 1) \rightarrow (0, 2)$
						$[24, 8, 68]$	$(0, 1) \rightarrow (0, 2)$
$5, 5, 5$		376	128	2	21	$[12, 4, 124]$	$(0, 1) \rightarrow (0, 2)$
						$[16, 0, 92]$	$(1, 0) \rightarrow (2, 0)$
$5, 5, 5$		376	128	2	21	$[12, 0, 116]$	$(1, 0) \rightarrow (2, 0)$
						$[32, 4, 44]$	$(0, 1) \rightarrow (0, 2)$
$5, 5, 5$		376	128	2	21	$[4, 0, 300]$	$(1, 0) \rightarrow (0, 1)$
						$[16, 4, 76]$	$(0, 1) \rightarrow (0, 2)$
$5, 5, 5$		376	64	2	21	$[4, 0, 332]$	$(1, 0) \rightarrow (0, 1)$
						$[12, 4, 112]$	$(0, 1) \rightarrow (0, 2)$
						$[16, 4, 84]$	$(0, 1) \rightarrow (0, 2)$
						$[28, 4, 48]$	$(0, 1) \rightarrow (0, 2)$
						$[36, 16, 44]$	$(0, 1) \rightarrow (0, 2)$
$2^*, 5, 5, 5$	32	$160 + 216$	128	2	21	$[4, 0, 64]$	$(1, 0) \rightarrow (0, 1)$
$1^*, 5, 5$	8	$16 + 352$	192	2	21	$[12, 6, 44]$	$(1, 0) \rightarrow (2, 0)$
$1^*, 5, 5$	8	$16 + 352$	128	2	21	$[8, 4, 68]$	$(2, 0) \rightarrow (4, 0)$
$1^*, 5, 5$	8	$16 + 352$	128	2	21	$[8, 4, 52]$	$(1, 0) \rightarrow (2, 0)$
$1^*, 5, 5$	8	$16 + 352$	96	2	21	$[4, 2, 108]$	$(1, 0) \rightarrow (0, 1)$

						[12, 2, 36]	(0, 1) → (0, 2)
	$1^*, 5, 5$	8	16 + 352	64	2	21	[20, 8, 32] (0, 2) → (0, 4)
⁶²	$1^*, 5, 5$	8	16 + 352	64	1	21	[16, 8, 48] (2, 2)
⁶²	$1^*, 5, 5$	8	16 + 352	64	1	21	[16, 8, 48] (2, 2)
	$1^*, 5, 5$	8	16 + 352	64	2	21	[12, 6, 72] (2, 0) → (4, 0)
							[24, 6, 36] (0, 2) → (0, 4)
⁶³	$1^*, 5, 5$	8	16 + 352	64	1	21	[8, 4, 96] (1, 0)
							[16, 4, 48] (0, 1)
							[24, 4, 32] (0, 1)
⁶³	$1^*, 5, 5$	8	16 + 352	64	1	21	[8, 4, 96] (1, 0)
							[16, 4, 48] (0, 1)
							[24, 4, 32] (0, 1)
	$1^*, 5, 5$	8	16 + 352	64	2	21	[4, 0, 140] (2, 0) → (0, 2)
							[16, 4, 36] (0, 2) → (0, 4)
	$1^*, 5, 5$	8	16 + 352	64	2	21	[4, 0, 128] (2, 0) → (0, 2)
							[16, 8, 36] (0, 1) → (0, 2)
	$1^*, 5, 5$	8	16 + 352	64	2	21	[4, 0, 112] (2, 0) → (0, 2)
	$1^*, 5, 5$	8	16 + 352	64	2	21	[4, 0, 108] (1, 0) → (0, 1)
							[16, 4, 28] (0, 1) → (0, 2)
	$1^*, 5, 5$	8	16 + 352	32	2	21	[4, 2, 168] (1, 0) → (0, 1)
							[8, 2, 84] (0, 1) → (0, 2)
							[12, 2, 56] (0, 1) → (0, 2)
							[16, 6, 44] (0, 1) → (0, 2)
							[24, 2, 28] (0, 1) → (0, 2)
							[24, 10, 32] (0, 1) → (0, 2)
	$1^*, 5, 5$	8	16 + 352	32	2	21	[4, 2, 144] (2, 0) → (0, 2)
							[12, 2, 48] (0, 2) → (0, 4)
							[16, 2, 36] (0, 2) → (0, 4)
	$2^*, 5, 5$	32	160 + 208	192	2	21	[4, 2, 76] (1, 0) → (0, 1)
	$2^*, 5, 5$	32	160 + 208	128	2	21	[20, 8, 20] (0, 1) → (0, 2)
	$2^*, 5, 5$	32	160 + 208	96	2	21	[4, 2, 84] (1, 0) → (0, 1)
							[12, 2, 28] (0, 1) → (0, 2)
	$2^*, 5, 5$	32	160 + 208	64	2	21	[8, 2, 44] (0, 1) → (0, 2)
							[12, 6, 32] (1, 0) → (2, 0)
	$2^*, 5, 5$	32	160 + 208	64	2	21	[4, 0, 76] (1, 0) → (0, 1)
							[16, 4, 20] (0, 1) → (0, 2)

285 relative graphs, $(r, c) = (231, 682)$; 211 absolute graphs, $(r, c) = (208, 189)$.

DEPARTMENT OF MATHEMATICS, BILKENT UNIVERSITY, 06800 ANKARA, TURKEY

Email address: degt@fen.bilkent.edu.tr