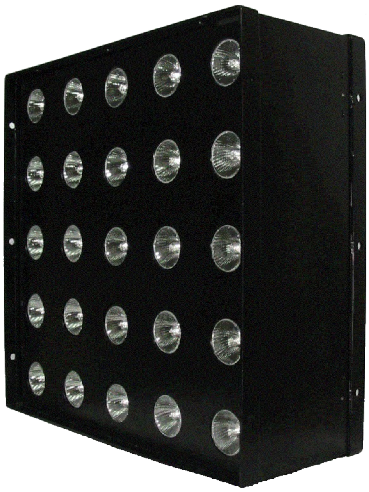
Chromlech
Conception de matériels d'éclairage scénique



JARAG-5

User Manual

Rev D

JA121 - JA221

FW V2.3

Chromlech

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1. The JARAG-5

The JARAG-5 provides the same light output as a conventional lighting system but can be used to create a wide range of lighting effects. The dimmers, sequencer and control interfaces are built in so that the system can be installed simply and easily. It only requires a mains supply and an external DMX controller.

Lamp array

The JARAG-5 has a 25 lamp array. The type of lamp used depends on the lighting system model: The JA121 takes PAR20 lamps (GU10), and the JA221 takes PAR30 lamps (E26). The lamps are controlled individually by a built-in 25 channel dimmer.

Internal sequencer

The lighting system has an internal sequencer which makes it easier to control the lamp array. The sequencer can store up to 256 sequences.

A sequence is a series of steps (maximum 32) played in a loop and the brightness, speed and effects can be adjusted in real time. Each step defines the state of each of the 25 lamps.

The sequences are stored in 16 banks of 16 sequences. The sequences for banks 1 to 8 are factory set and cannot be changed. These sequences are common to all JARAG-5s and provide a firm basis for creating lighting effects with the same controls for any lighting system (see description of sequences in the appendix).

The sequences for banks 9 to 16 can be defined by the user. These sequences allow each lighting system to be set up to meet the user's requirements.

The sequences are programmed using special software supplied free of charge (downloaded from *www.chromlech.com*) that operates under PC/Windows. The sequences can be defined and then uploaded into the lighting systems. A graphic interface allows for simulating the sequences that have been defined.

6 DMX channel personality

In 6 channel mode, the 25 lamp sequence is controlled by the built-in sequencer controlled by DMX using 6 channels to control all 25 lamps.

The sequences are controlled by DMX: selection of the sequence, speed of sequencing, overall brightness, fade time between steps, orientation and reflection of the patterns.

The sequencer can store 256 32-step sequences, each step defining the state of all 25 lamps. Any lighting pattern can be defined as well as transitions.

The first 128 sequences are defined internally and are the same for all JARAG-5s, providing a firm basis for creating lighting effects with the same controls for any lighting system (see description of sequences in the appendix).

All of the remaining 128 sequences can be defined by the user to meet his requirements. Pre-coding special sequences makes it possible to have optimal light sequences for each lighting system.

The sequences are programmed using special software supplied free of charge (downloaded from *www.chromlech.com*) that operates under PC/Windows. The sequences can be defined and then uploaded into the lighting systems. A graphic interface allows for simulating the sequences that have been defined.

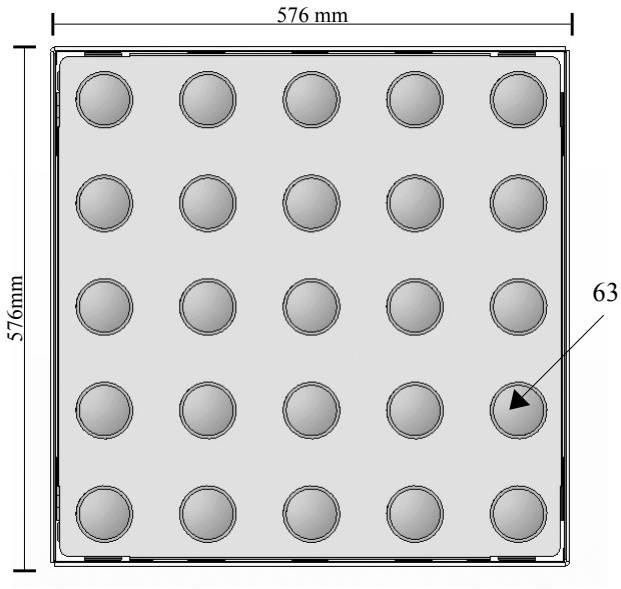
25 DMX channel personality

The 25 DMX channel personality is used to control the 25 lamp array directly (each DMX channel corresponds to one lamp). In this case, the internal sequencer and the sequences it contains are not used.

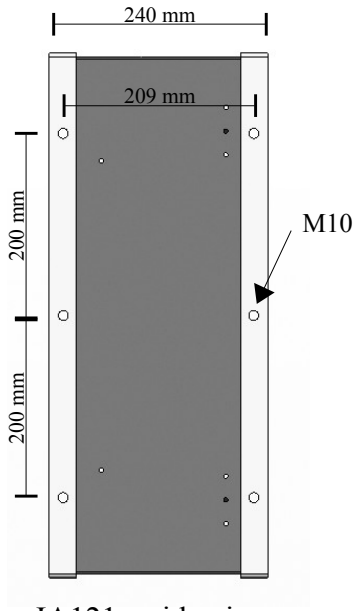
31 DMX channel personality

The 31 DMX channel personality makes it possible to use the 6 channel sequencer mode at the same time as the 25 channel matrix mode. The lighting system uses a Highest Takes Precedence (HTP) priority system for each lamp.
This allows a matrix controller to be used, for example for overall animation of a JARAG light wall, while still being able to use the internal sequences that can be superimposed as required.

JA121 dimensions

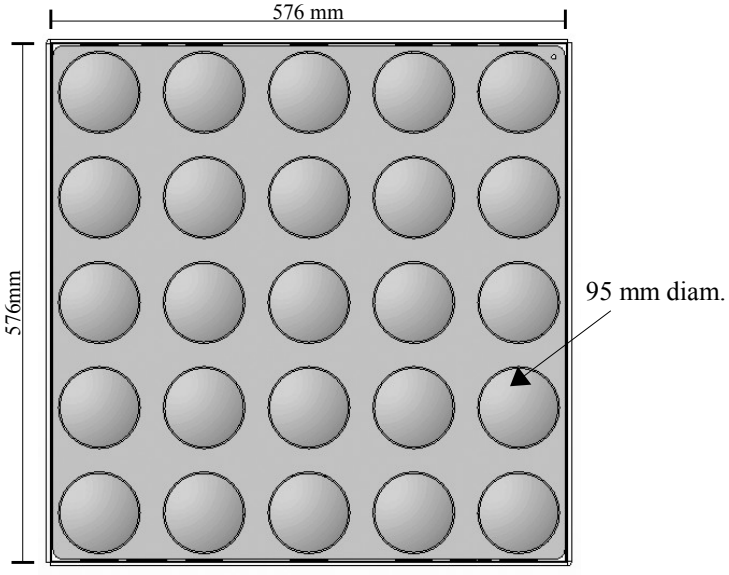


JA121 – front view

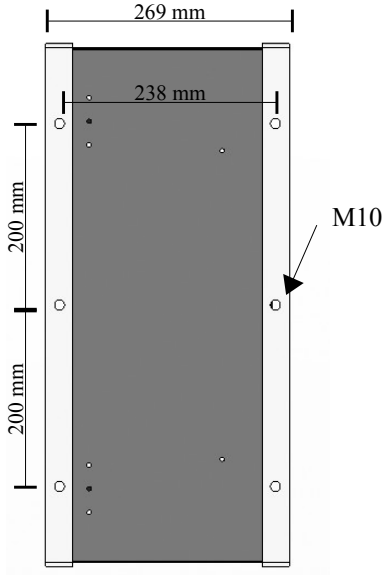


JA121 – side view

JA221 dimensions



JA221 – front view



JA221 – side view

2. Installation

The JARAG-5 can be installed in any orientation.

Direct fastening

There are 24 M10 holes on the edges of the JARAG-5 chassis (12 at the front and 12 at the back) so that the lighting system can be suspended using hooks, slings or shackles.

Using the yoke mounting

The yoke mounting is attached to 4 holes on the side of the JARAG-5 to adjust the inclination and orientation of the lighting system easily.

Stacking arrays

The JARAG-5 lighting systems can be stacked to form larger arrays using M10 bolts in the side holes.

3. Precautions in use

The JARAG-5 lighting system has its own power control unit and is designed to be connected directly to the mains. It must not be powered through a dimmer.

Switch off unit before disconnecting mains.

The lighting system should be disconnected from the mains before any maintenance or relamping operation. The rear panel must not be opened when the lighting system is powered up. Refer servicing to qualified service personal only.

Before use, check that the lighting system cable and plug are in good conditions and that the power supply used is correctly earthed.

The lighting system should not be exposed to rain or water. Not for residential use.

The lighting system must always be secured with an appropriate safety cable.

Intense heat - Lamps are hot - Avoid contact by persons and materials

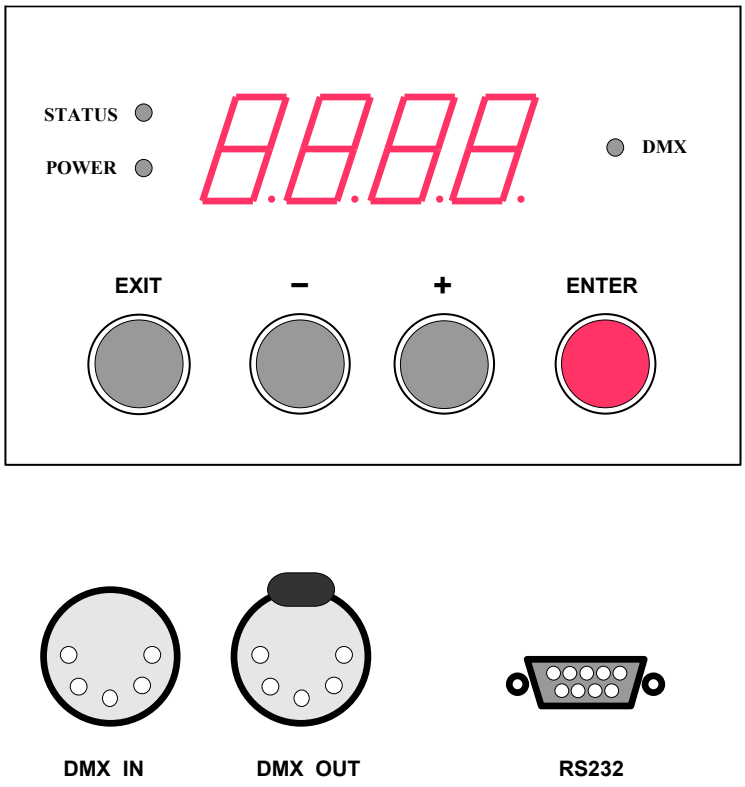
WARNING
Read user's guide for safety instructions
Min distance to flammable material = 0,6 m
Min distance to illuminated surface = 1,60m
Maximum ambient temperature ta = 35°C
Maximum exterior surface temperature = 100°C

CAUTION - Risk of fire and electric shock.
Use PAR lamps 75W max. with aluminium reflector only
Replace fuse FU1 and FU2 only with fuse of same type and rating (230V lamps : 6.3x32mm T 10A 250V or 115V lamps : 6.3x32mm T 20A 250V).

NOTE:
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

4. Control panel

The main operating parameters can be set using the built-in control panel. This panel has four keys and a display and is located on the back of the lighting system. The settings are stored in non-volatile memory.



Control panel (rear)

Connectors

	DMX IN
Function	DMX 512 input
Type	XLR 5 pin male
Pinout	1: Shield (ground) 2: DMX – (primary data –) 3: DMX + (primary data +) 4: Not connected 5: Not connected

	DMX OUT
Function	DMX 512 output
Type	XLR 5 pin female
Pinout	1: Shield (ground) 2: DMX – (primary data –) 3: DMX + (primary data +) 4: Not connected 5: Not connected

	RS232
Function	SubD 9 pin female
Type	Serial link to PC
Pinout	1: Not connected 2: TX (output) 3: RX (input) 4: DTR (input) 5: Ground 6: Not connected 7: Not connected 8 Not connected 9: Not connected

Indicators

	POWER
Off	No power or fuse blown
Green	Power on

	STATUS
Off	Normal operation
Red	Malfunction. Maintenance required.

	DMX
Off	No DMX signal
Green	DMX signal OK
Green flashing orange	Occasional DMX errors: poor quality DMX signal Check the connections and signal integrity.
Red	DMX connection fault or polarity inversion: DMX signal not usable

Setup menu

The setup menu uses the following keys.

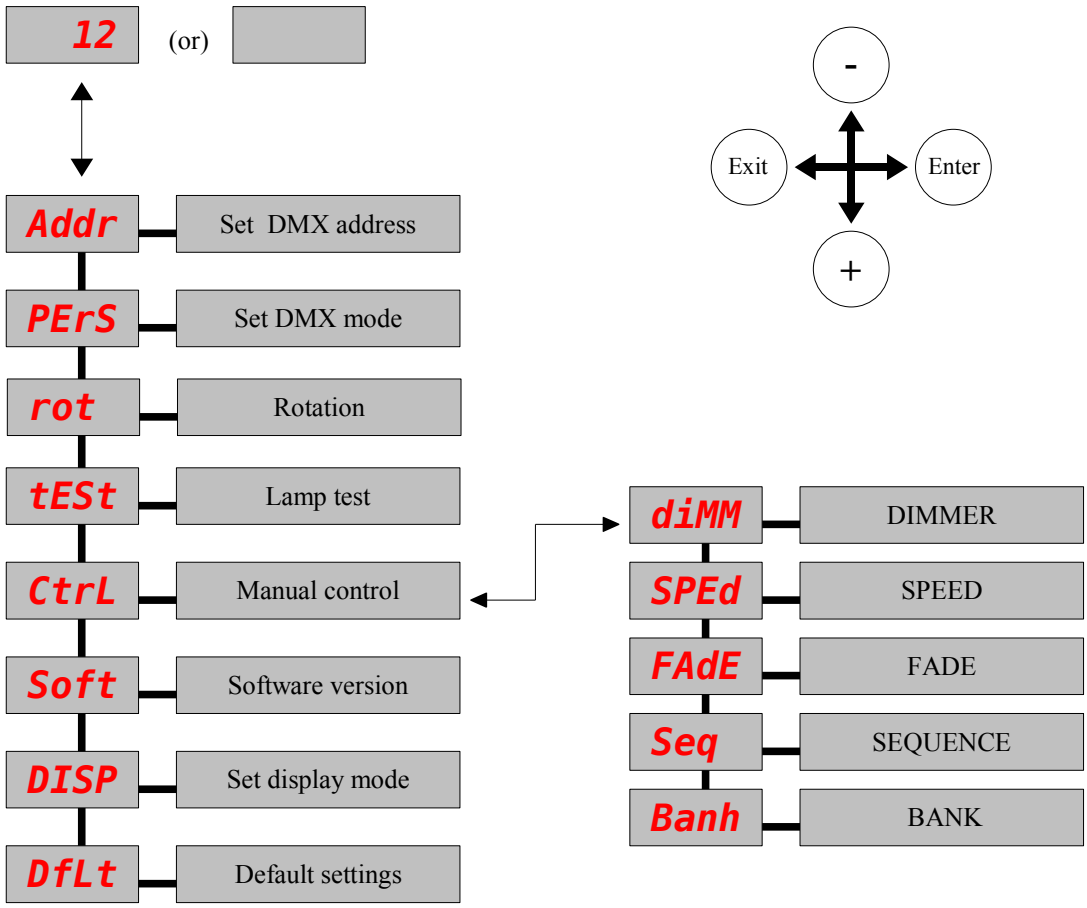
	Navigation through the menu	*Setting a value*
ENTER	Select (sub)menu	Save the value
EXIT	Exit (sub)menu	Cancel changes
+	Next item	Increase the value
-	Previous item	Reduce the value

Holding down the '+' or '-' key increases the rate of change.

When a value is being changed, all 4 decimal points [. . . .] are lit on the display.

By default, the display is either blank or shows the DMX address of the lighting system. To enter the setup menu press <ENTER>. The display automatically returns to its default state if no selection is made for 1 minute.

Setup menu structure



	Addr
Function	Sets DMX address
Value	The value is the first DMX channel for the lighting system. Minimum = 1 Maximum = 512 (nominal) Maximum value for 6 channel personality = 507 Maximum value for 25 channel personality = 488 Maximum value for 31 channel personality = 482

	Pers
Function	Sets DMX personality
Value	6 ch = 6 DMX channels (using internal sequences) 25ch = 25 DMX channels (direct array addressing) 31ch = 31 DMX channels (internal sequences + array, using HTP) See chapter 5 for the assignment of the channels

	Rot
Function	Sets rotation of the lighting system
Value	UP = no rotation ꟻC = 90° rotation dՈ = 180° rotation Ↄꟻ = 270° rotation

	Test
Function	Lights all the lamps for testing
Value	Test selected = all the lamps are lit at low power

	Ctrl
Function	Manual control of the lighting system using 5 channels
Value	Dimm = 'Dimmer' channel (intensity for the sequence) Sped = 'Speed' channel (speed or step selection for the sequence) Fade = 'Fade' channel (cross-fade and LV halogen emulation) Seq = 'Sequence' channel (selects the sequence) Banh = 'Bank' channel (selects the sequence bank)

	Disp
Function	Sets the default display mode
Value	On = the display shows the DMS of the lighting system continuously Off = the display shows the DMX address and goes off after about 1 minute

	Dflt
Function	Restores the default settings
Value	This sets the following values: DMX address = 1, personality = 6 channels, rotation = 0°, display = On

5. DMX control

Three different DMX personalities are available.

6 channel personality (sequences)

6 channel personality is used to replay sequences programmed in the built-in sequencer.

Channel 1	**Intensity**
0 % to 100%	Off Full On
Flash	Full On, starting from the first step of the sequence

Channel 2	**Speed**	**Step**
0%	Off	
3% to 50%	Fast Slow	
50% to 95%		Step 1 Step 32
100% (Flash)	Synchronise sequence to first step	

Channel 3	**Cross-fade**	**Low-voltage lamp effect**
0% to 50%	Fast Slow	Off
50% to 100%	Slow Fast	On

Channel 4	reflection	Rotation
0 ... 12%	None	0
13 ... 25%	Vertical	0
26 ... 37%	Horizontal	0
38 ... 50%	Vertical + horizontal	0
51 ... 62%	None	90°
63 ... 75%	Vertical	90°
76 ... 87%	Horizontal	90°
88...100%	Vertical + horizontal	90°

Channel 5	Sequence selection
0% to 100%	Sequence 1 Sequence 16

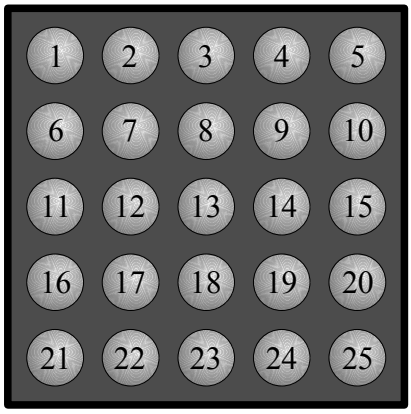
Channel 6	Sequence bank selection
0% to 100%	Bank 1 Bank 16

25 channel personality (matrix)

The intensity of each lamp is directly controlled by a DMX channel as for a conventional dimmer and the built-in sequencer is disabled.

The following schematic shows the channel assignments for the lamps.

Channel 1 to 25	Intensity
0% to 100%	Off Full On



31 channel personality (dual)

Each lamp is controlled simultaneously by the built-in sequencer (6 channel mode) and individually as an array (25 channel mode).
The lighting system calculates the intensity from the two modes using HTP (Highest takes Precedence) for each lamp individually.

Channel 1 to 6	Sequence control (6 channel mode)
Channel 1 Channel 2 Channel 3 Channel 4 Channel 5 Channel 6	Intensity Speed / step Cross-fade / low-voltage lamp effect Rotation / reflection Sequence Sequence bank

Channel 7 to 31	Matrix control (25 channel mode)
Channel 7 ... Channel 31	Lamp 1 Lamp 25

6. Programming

The sequences are programmed using the "Jarag Control Center".
This program can be downloaded from www.chromlech.com

Further information can be found in the program documentation.

7. Specifications

Power supply
Mains supply
230V / 50Hz / 8,2A / 1875 W
115V / 60Hz / 16,4A / 1875 W
Built-in dimmers.

Lamps
25x 115 or 230V, 75W lamps
JA121: Hi-Spot ES63 25°, 2800K, 2500h, GU10, aluminium reflector
JA221: Hi-Spot ES95 10°, 2900K, 3000h, E26, aluminium reflector

Chassis
Matte black epoxy finish
JA121 (HxWxD) 58 x 58 x 24 cm
JA221 (HxWxD) 58 x 58 x 27 cm
Weight (without lamps) = 9.4 kg

Attachment
Yoke mounting or M10 holes on chassis

Stacking
JARAG systems can be stacked, while maintaining a constant spacing between the lamps.

Connectors
Mains cable (Neutrik PowerCon)
DMX in (XLR5), DMX out (XLR5)
RS232-C (SubD9)

Sequencer
Built-in sequencer with up to 256 32-step sequences controlled by DMX.
128 sequences (8 banks of 16) are factory defined, the remaining 128 can be user programmed.

DMX control - 6 channel (sequence)
channel 1 - Intensity
channel 2 - Speed
channel 3 - Effects (*)
channel 4 - Rotation, H / V reflection
channel 5 - Sequence
channel 6 - Sequence bank
(*) variable cross-fade, low-voltage lamp emulation

DMX control - 25 channel (matrix)
channel 1 to 25 – Intensity lamp 1 to 25
(25 independent circuits)

DMX control - 31 channel (dual)
HTP ('Highest Takes Precedence) prioritisation of 6 channel (sequence) and 25 channel (array) modes.
channel 1 to 6 - Sequence control
channel 7 to 31 – Array control

Manual control
Manual digital control on rear panel with four keys and display.
Settings:
DMX address, DMX personality, lamp test, rotation of the lighting system, activating a sequence, resetting to factory settings.

PC control (RS232-C)
The lighting system can be controlled by a PC to upload and save sequences as well as setting up the lighting system.

Control program
Can be downloaded from *www.chromlech.com*
Requires a PC (Win2K/XP) with RS232-C port for connection to the JARAGs.
Can be used to create, prepare and simulate patterns and sequences without being connected to the lighting system.
Can be used to upload sequences to and save sequences from the lighting system as well as testing and setting up the lighting system using a built-in control console.

8. Part numbers

JA121	Jarag-5 (for aluminium reflector PAR20 / GU10 lamps)
JA221	Jarag-5 (for aluminium reflector PAR30 / E26 lamps)
JA102	Kit of 25 PAR20 (25°) lamps for JA121
JA202	Kit of 25 PAR30 (10°) lamps for JA221
JA123	Yoke mounting (for JA121 and JA221)
JA124	Transport flight case (for 2 x JA121)
JA224	Transport flight case (for 2 x JA221)
JA105	Sequence programming software

Sequence table

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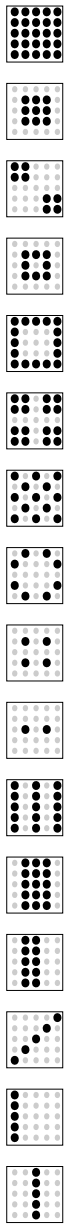
JARAG-5
Sequence Table

96	16
90	15
84	14
78	13
71	12
65	11
59	10
53	9
46	8
40	7
34	6
28	5
21	4
15	3
9	2
3	1



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

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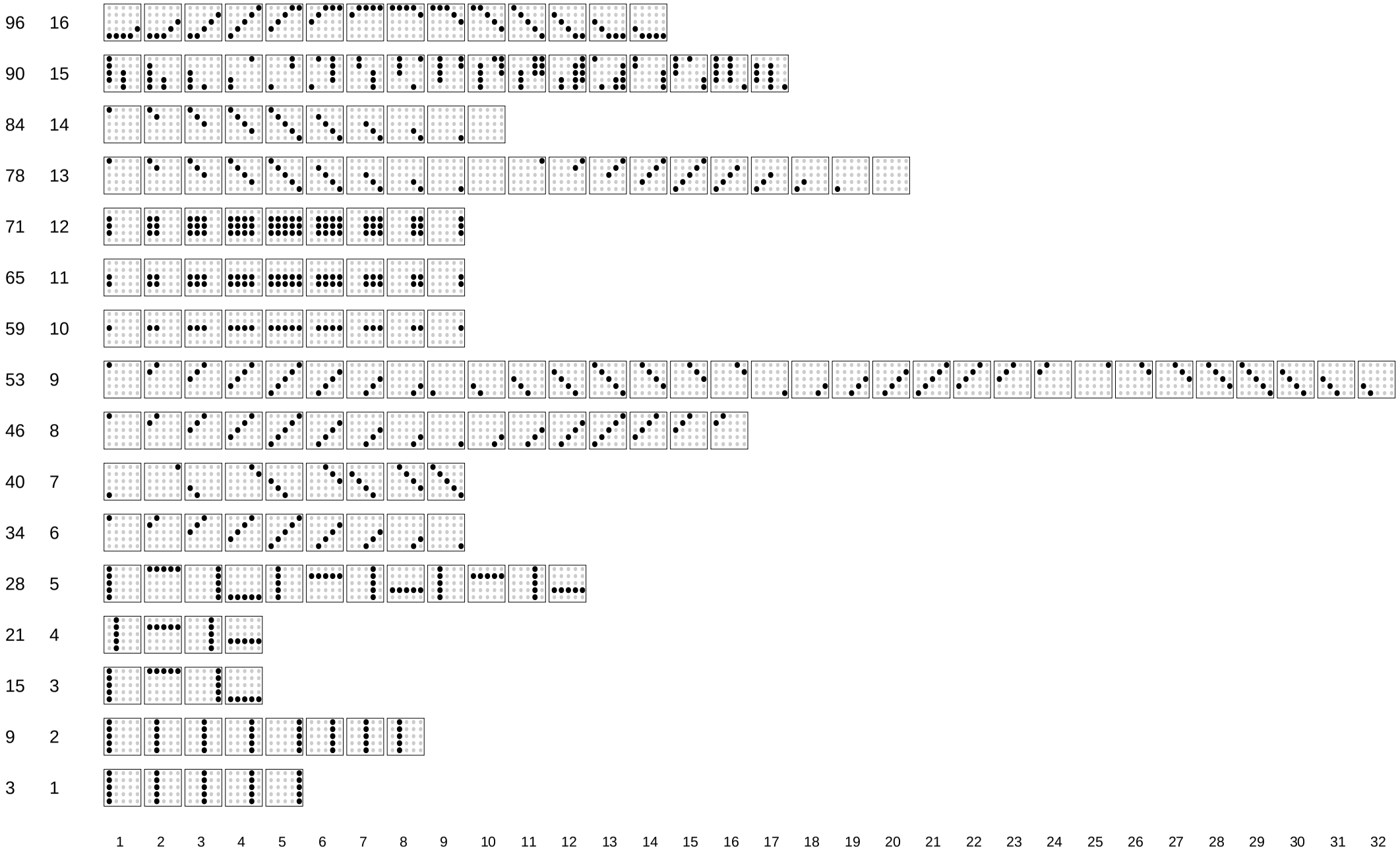

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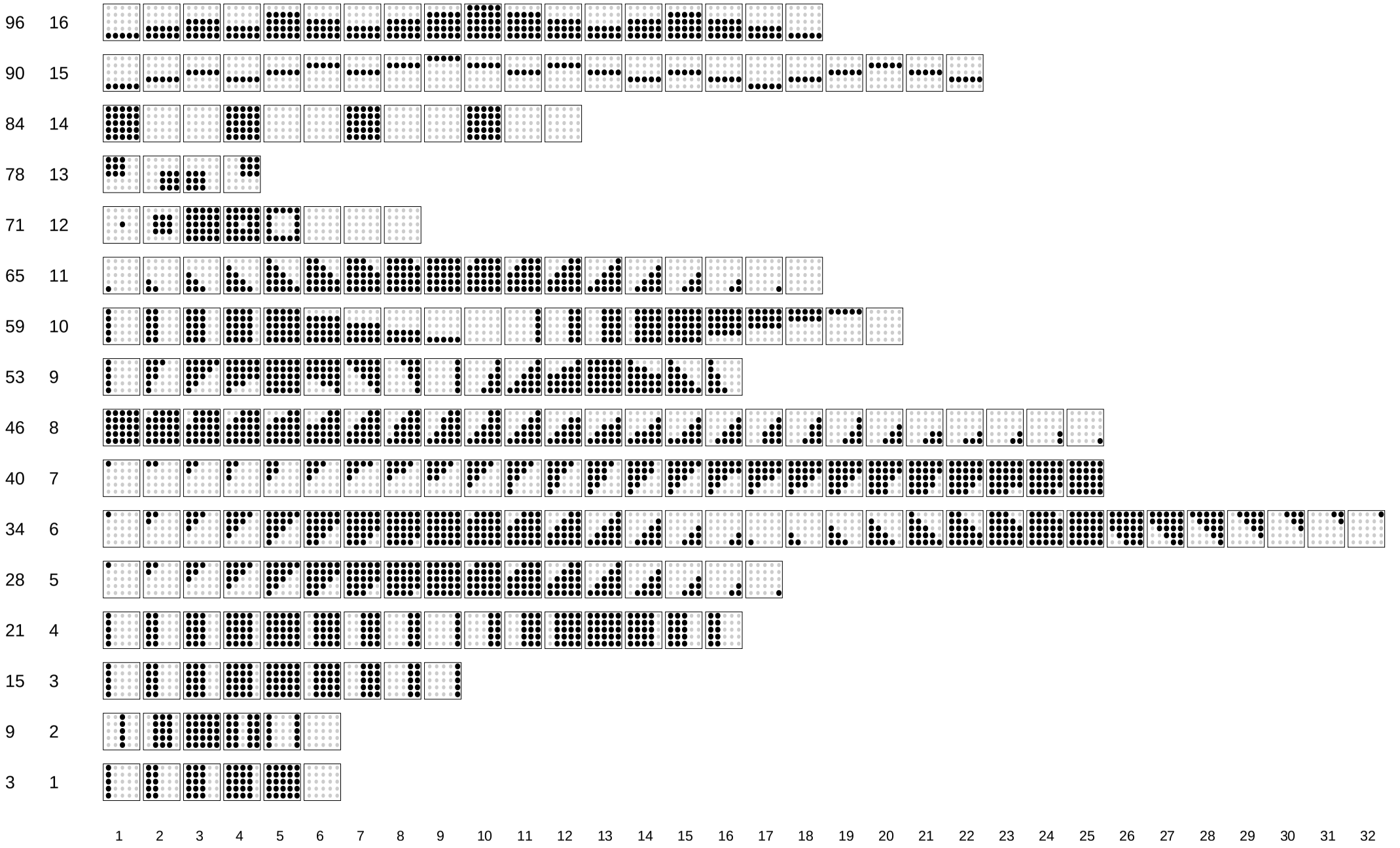

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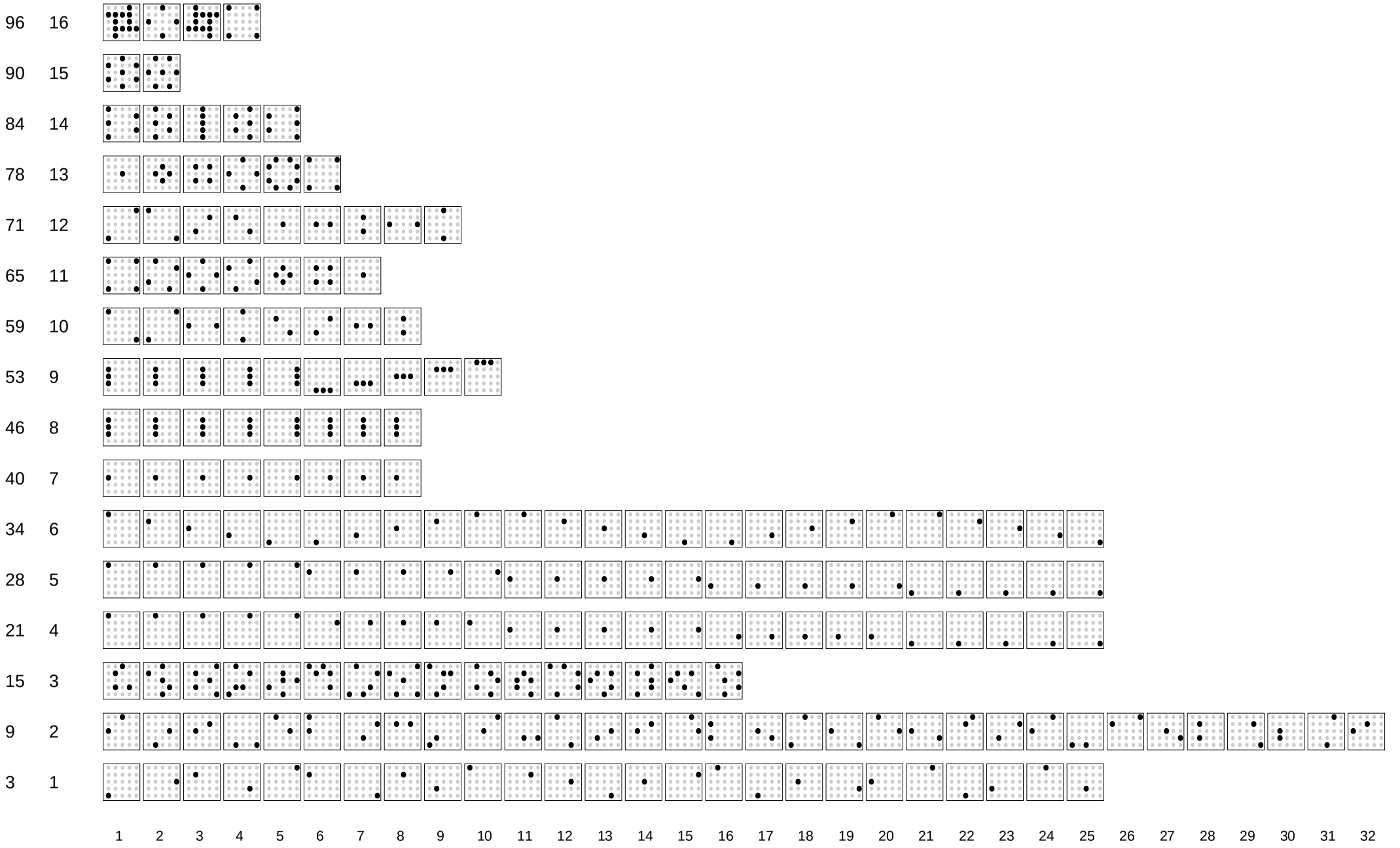

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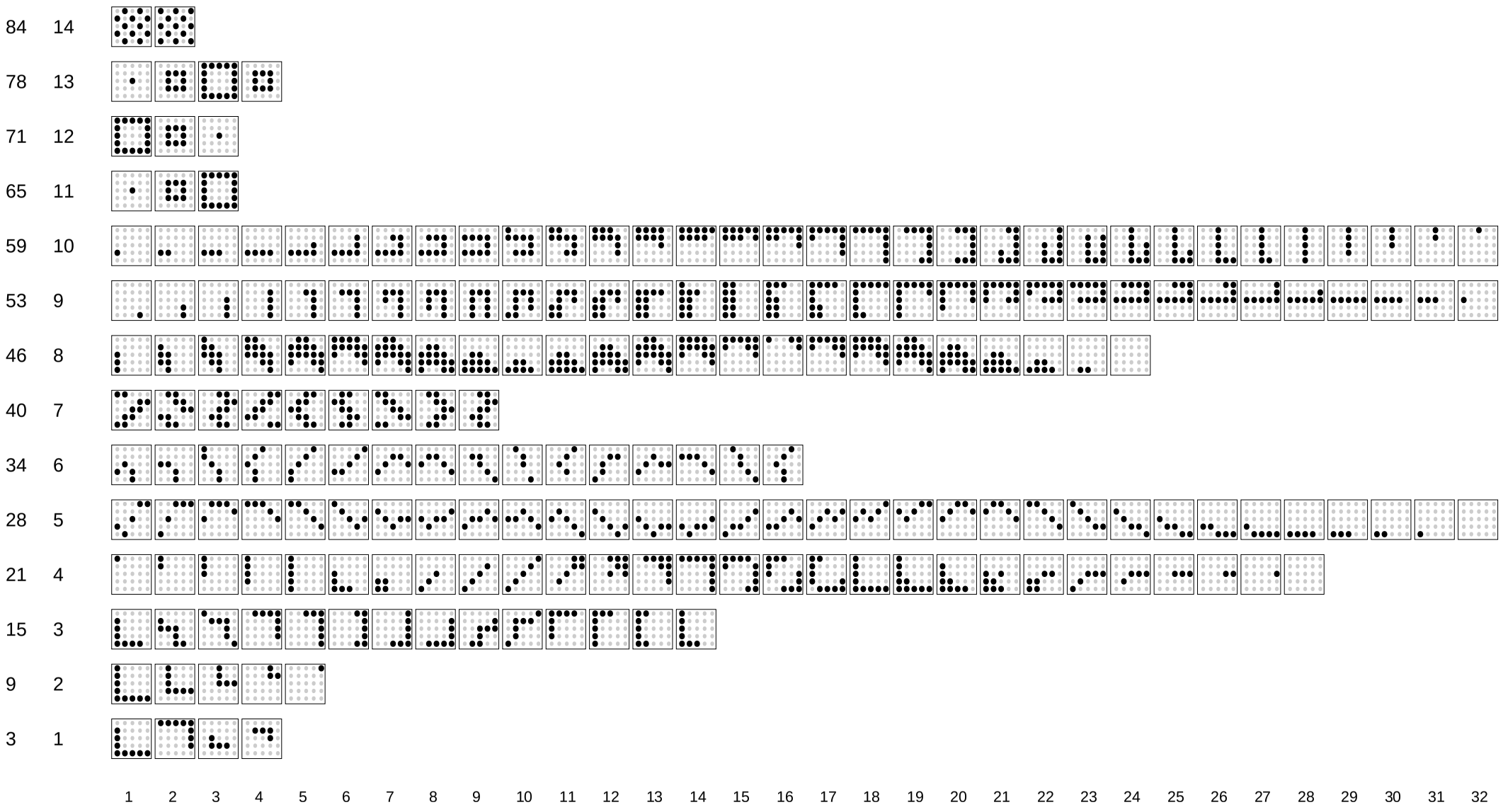

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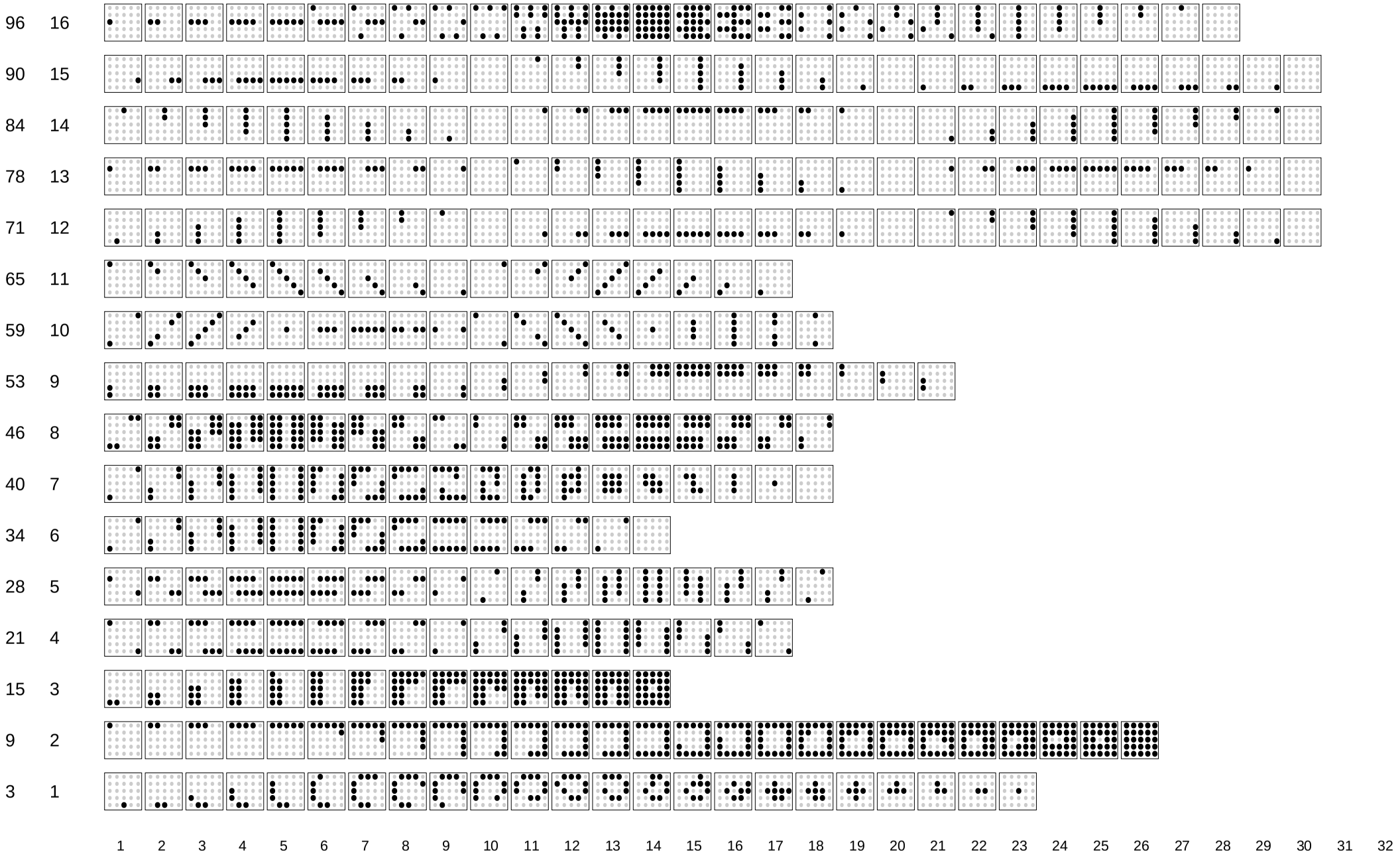

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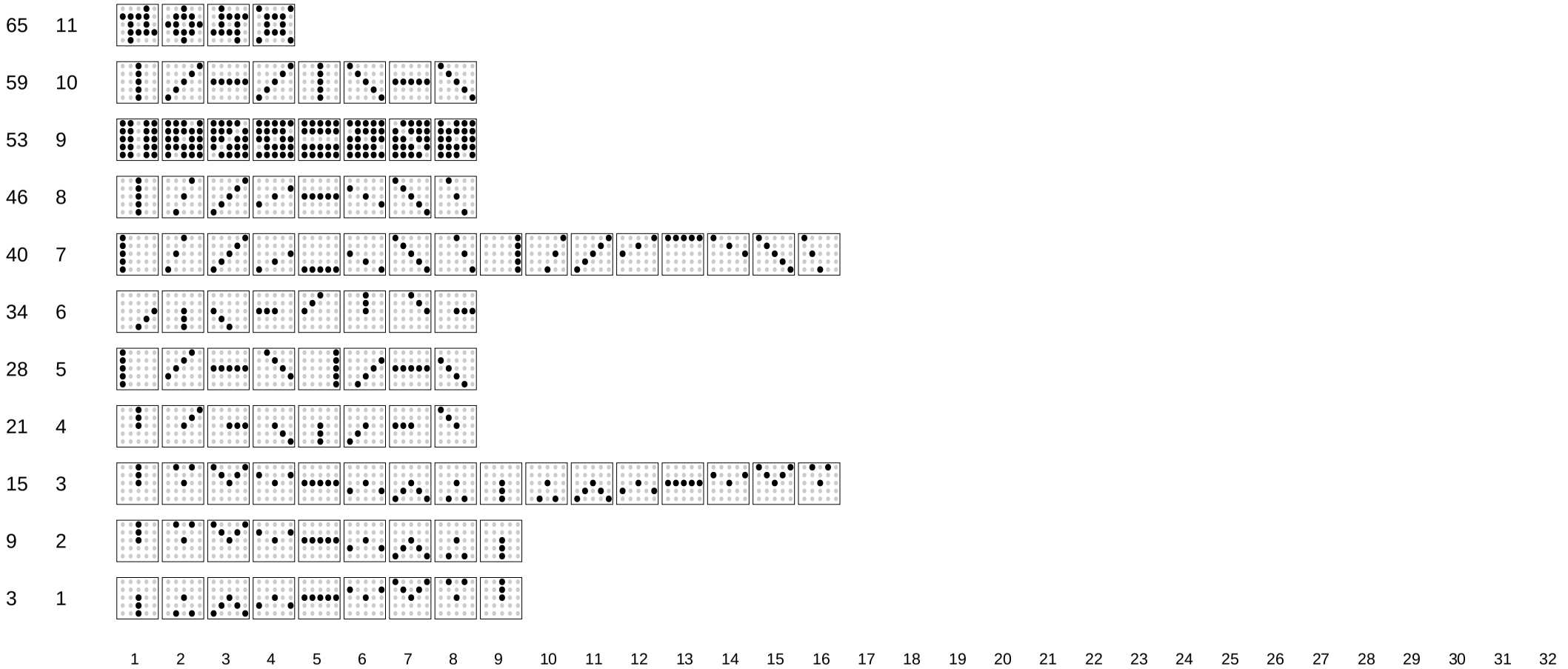

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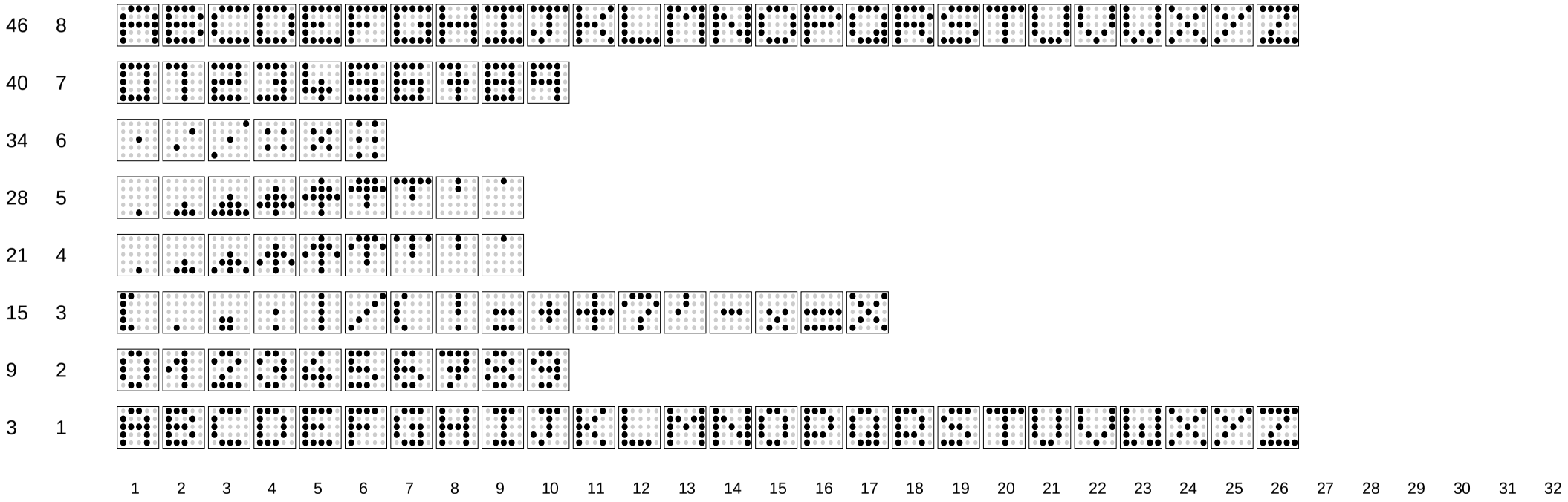

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