Negative cell values, singletons and linked tables in τ-argus

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Negative cell values

Given (primary) unsafe cells, determine suppression pattern

	Total	I	II	III
Total	363	8	120	235
A	148	-2	50	100
B	215	**10**	70	135

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Name	Value	Status	lb	ub	lpl	upl
c_{00}	363	s	0	550	–	–
c_{01}	8	s	0	550	–	–
$\vdots$		$\vdots$		$\vdots$		
c_{11}	-2	s	-10	40	–	–
$\vdots$		$\vdots$		$\vdots$		
c_{21}	10	u	0	100	2	2
$\vdots$		$\vdots$		$\vdots$		
c_{23}	135	s	0	550	–	–

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	Total	I	II	III
Total	363	8	120	235
A	148	**-2**	50	100
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$$C_L = -2$$
Add 3 to all interior cells
Adjust marginals occordingly

Name	Value	Status	lb	ub	lpl	upl
c_{00}	363	s	0	550	–	–
c_{01}	8	s	0	550	–	–
$\vdots$		$\vdots$		$\vdots$		
c_{11}	-2	s	-10	40	–	–
$\vdots$		$\vdots$		$\vdots$		
c_{21}	10	u	0	100	2	2
$\vdots$		$\vdots$		$\vdots$		
c_{23}	135	s	0	550	–	–

Negative cell values

Given (primary) unsafe cells, determine suppression pattern

	Total	I	II	III
Total	381	14	126	241
A	157	**1**	53	103
B	224	**13**	73	138

$C_L = -2$

Add 3 to all interior cells
Adjust marginals occordingly

Name	Value	Status	lb	ub	lpl	upl
c_{00}	381	s	18	568	–	–
c_{01}	14	s	6	556	–	–
$\vdots$		$\vdots$		$\vdots$		
c_{11}	1	s	-7	43	–	–
$\vdots$		$\vdots$		$\vdots$		
c_{21}	13	u	3	103	2	2
$\vdots$		$\vdots$		$\vdots$		
c_{23}	138	s	3	553	–	–

Singletons

Singleton = cell with one contributor

	Total	X1	X2	X3	X4
Total	227	76	33	93	25
A	146	52	**15**	62	**17**
B	81	24	18	31	8

🟡 denotes singleton
red denotes (primary) unsafe

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Total	227	76	33	93	25
A	146	52	**15**	62	**17**
B	81	24	18	31	8

	Total	X1	X2	X3	X4
Total	c_{00}	c_{01}	c_{02}	c_{03}	c_{04}
A	c_{10}	c_{11}	c_{12}	c_{13}	c_{14}
B	c_{20}	c_{21}	c_{22}	c_{23}	c_{24}

🟡 denotes singleton
red denotes (primary) unsafe

Virtual cell $c_v = c_{12} + c_{14}$

- Value $= 15 + 17 = 32$
- Status $=$ u
- lpl $= 0$, upl $= 1$

Singletons

Singleton = cell with one contributor

	Total	X1	X2	X3	X4
Total	227	76	33	93	25
A	146	52	**15**	62	**17**
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🟡 denotes singleton
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	Total	X1	X2	X3	X4
Total	c_{00}	c_{01}	c_{02}	c_{03}	c_{04}
A		c_{10}	$\times$	$\times$	c_{13}	$\times$
B		c_{20}	$\times$	$\times$	c_{23}	$\times$

Virtual cell $c_v = c_{12} + c_{14}$

- Value = $15 + 17 = 32$
- Status = u
- lpl = 0, upl = 1

Singletons

Singleton = cell with one contributor

	Total	X1	X2	X3	X4
Total	227	76	33	93	25
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Total	c_{00}	c_{01}	$\times$	c_{03}	$\times$
A	c_{10}	$\times$	$\times$	c_{13}	$\times$
B	c_{20}	$\times$	c_{22}	c_{23}	$\times$

⭕ denotes singleton
red denotes (primary) unsafe

Compare 'old' approach

Linked tables

- Provide set of tables
- Tables linked by shared cells
- Cover table is possible
- Find suppression pattern 'simultaneously'
- Nicer solution compared to 'naive approach'

Linked tables

T1 = (Total, A, A1, A11, A12, A2, A21, A22, B, B1, B11, B12, B2) × (X, X1, X2)

T2 = (Total, A, A1, A2, B, B1, B2) × (X, X1, X11, X12, X2, X21, X22)

Linked tables

T1 = (Total, A, A1, A11, A12, A2, A21, A22, B, B1, B11, B12, B2) × (X, X1, X2)
T2 = (Total, A, A1, A2, B, B1, B2) × (X, X1, X11, X12, X2, X21, X22)

	X					
		X1			X2	
			X11	X12		X21	X22
Total						
A						
A1						
A11						
A12						
A2						
A21						
A22						
B						
B1						
B11						
B12						
B2						

Linked tables

T1 = (Total, A, A1, A11, A12, A2, A21, A22, B, B1, B11, B12, B2) × (X, X1, X2)
T2 = (Total, A, A1, A2, B, B1, B2) × (X, X1, X11, X12, X2, X21, X22)

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T1 = (Total, A, A1, A11, A12, A2, A21, A22, B, B1, B11, B12, B2) × (X, X1, X2)
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Linked tables

T1 = (Total, A, A1, A11, A12, A2, A21, A22, B, B1, B11, B12, B2) $\times$ (X, X1, X2)
T2 = (Total, A, A1, A2, B, B1, B2) $\times$ (X, X1, X11, X12, X2, X21, X22)

	X						
		X1			X2		
			X11	X12		X21	X22
Total	✔	✔	✔	✔	✔	✔	✔
A	✔	✔	✔	✔	✔	✔	✔
A1	✔	✔	✔	✔	✔	✔	✔
A11	✔	✔	✘	✘	✔	✘	✘
A12	✔	✔	✘	✘	✔	✘	✘
A2	✔	✔	✔	✔	✔	✔	✔
A21	✔	✔	✘	✘	✔	✘	✘
A22	✔	✔	✘	✘	✔	✘	✘
B	✔	✔	✔	✔	✔	✔	✔
B1	✔	✔	✔	✔	✔	✔	✔
B11	✔	✔	✘	✘	✔	✘	✘
B12	✔	✔	✘	✘	✔	✘	✘
B2	✔	✔	✔	✔	✔	✔	✔