

Cell suppression in a special class of linked tables

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December 17, 2007
Manchester, Great Britain



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- Stand alone table
- Hierarchically linked tables



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 - 5-digit NACE code × high level region
 - 2-digit NACE code × detailed region



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 - 5-digit NACE code × detailed region



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Need way to define set of linked tables



Hierarchies as trees

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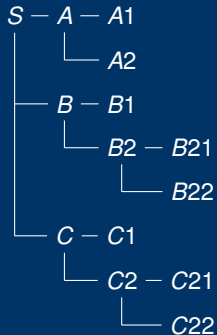
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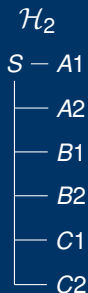
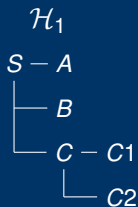
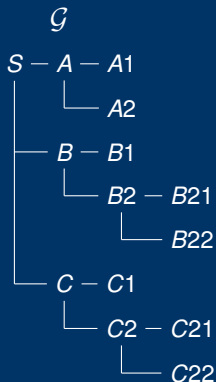
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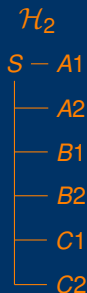
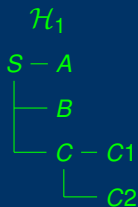
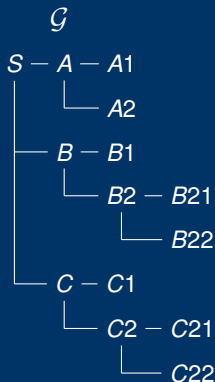
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$$\mathcal{H}_1 \preceq \mathcal{G}$$

$$\mathcal{H}_2 \not\preceq \mathcal{G}$$

$$\mathcal{H}_3 \not\preceq \mathcal{G}$$



Covering hierarchies

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\mathcal{G} **covers** the set of hierarchies $(\mathcal{H}_1, \dots, \mathcal{H}_K)$

if

\mathcal{G} is the smallest hierarchy with

$$\mathcal{H}_i \preceq \mathcal{G} \quad \forall i = 1, \dots, K$$



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- User specifies N tables to be protected
- Tables can be hierarchical
- Tables have M different spanning variables
- Define M -dimensional table with hierarchies covering user defined hierarchies
- Use modular approach, disregarding subtables not in user set of tables



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- Tables can be hierarchical
All hierarchies of same variable should be coverable!
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Implicitly defined structure is not protected explicitly



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Implicitly defined structure is not protected explicitly

Set of tables completely determines interior of higher dimensional table



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	<i>B1</i>	<i>B2</i>	<i>B3</i>	Total
<i>A1</i>	30	150	70	250
<i>A2</i>	270	110	255	635
Total	300	260	325	885

	<i>C1</i>	<i>C2</i>	<i>C3</i>	Total
<i>A1</i>	140	50	60	250
<i>A2</i>	85	210	340	635
Total	225	260	400	885

	<i>C1</i>	<i>C2</i>	<i>C3</i>	Total
<i>B1</i>	110	90	100	300
<i>B2</i>	40	50	170	260
<i>B3</i>	75	120	130	325
Total	225	260	400	885



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	<i>B1</i>	<i>B2</i>	<i>B3</i>	Total
A1	30	150	70	250
A2	270	110	255	635
Total	300	260	325	885

Safe!

	<i>C1</i>	<i>C2</i>	<i>C3</i>	Total
A1	140	50	60	250
A2	85	210	340	635
Total	225	260	400	885

Safe!

	<i>C1</i>	<i>C2</i>	<i>C3</i>	Total
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Safe!



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	<i>B1</i>	<i>B2</i>	<i>B3</i>	Total
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A1	140	50	60	250
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Safe!

	<i>C1</i>	<i>C2</i>	<i>C3</i>	Total
<i>B1</i>	110	90	100	300
<i>B2</i>	40	50	170	260
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Safe!

However:

interior $A \times B \times C$ is unique!

Any unsafe cell in interior is implicitly disclosed!



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- Similarly: suppression pattern can be broken



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- Similarly: suppression pattern can be broken
- Problem may also occur in current situation
 - Used hierarchy not complete detail



Thank you.

