



Improving the quality of GCSE Assessment

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**Cambridge
Exam Research**

**Bristol
University**

**Pearson Research
& Assessment**

Our Method



- GCSE question papers, mark schemes and examiner's reports from June 2002, 2005 and 2006
 - Business Studies
 - Geography
 - Design & Technology
- Classification of 2,023 questions according to:
 - Command word
 - Response type
 - Marking type
 - No. of marks

Classification Table

QP item no.	Question word	Response type	Marks	Marking type	Notes
2a	which?	2.2-short	2	2.3-Points / examples	
2b	label	3-Diagram	4x1	2.3-Points / examples + scoring rules	will they guess they have to add 4 labels? <i>MS unclear</i> – what is a ‘simple point’?

Our Method



- Identification of questions worth detailed analysis
- Outcome Space analysis according to our model of the Question Answering Process
 - Detailed analysis of students' processing when
Reading the question,
Thinking,
Writing an answer

Question and mark scheme writing system



How to write an exam question

- Step 1 The **idea** of a task
- Step 2 Sketch the **desired outcome space**
- Step 3 Write the **mark scheme**
- Step 4 Write the **question**
- Step 5 Sketch the **predicted outcome space**
- Step 6 Iterate steps 4 - 5 until the desired and predicted outcome spaces agree

Outcome Space Control & Assessment Theory

Validity



An exam question can only contribute to valid assessment:

if the students' minds are doing the things we want them to show us they can do; and if we give credit for, and only for, evidence that shows us they can do it.

Improving validity

- Questions that ensure students' minds **are** *doing the things we want them to show us they can do*
- Mark schemes that help markers
- Match between mark scheme and question so that we give credit for the **evidence they can** *do the things we want them to show us they can do*

Step 1 - Idea of Task



This is essentially a creative process

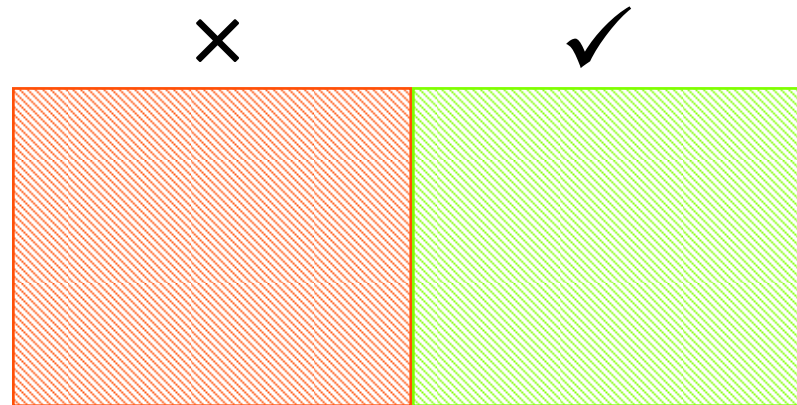
Example – ‘Adding value’

A Business Studies examiner has set up a case study of a company, Thomson and Campbell, who sell holidays for young people.

- The examiner’s idea is to assess their understanding of **adding value** in a service business
- Use case study of TAC holidays
- Ask: **How could TAC add value?**

Step 2 - Outcome Space

Setter's
expected
Outcome
Space

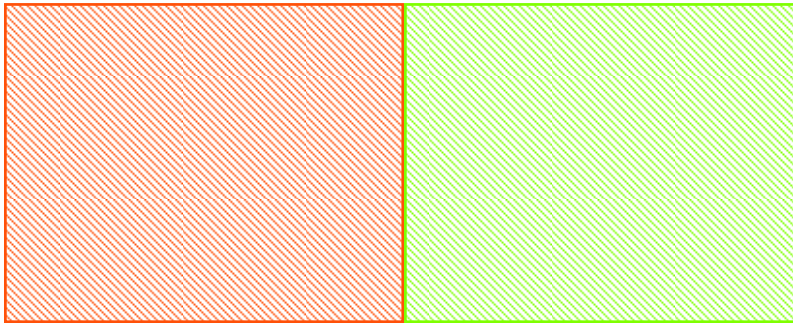


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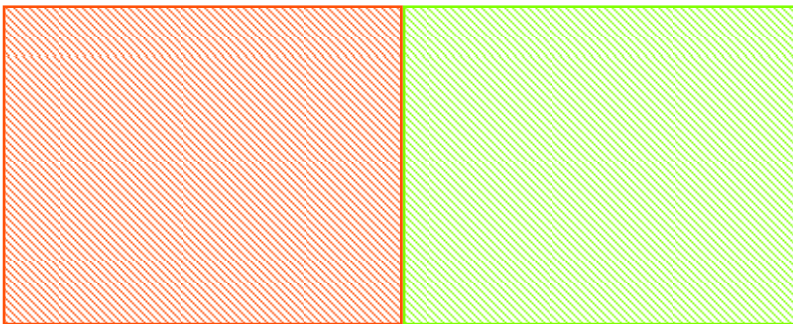
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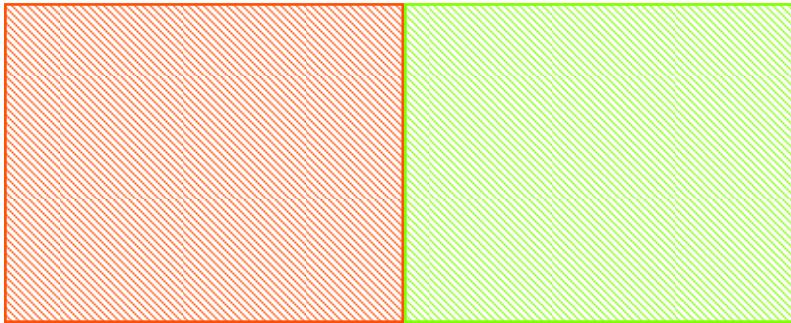


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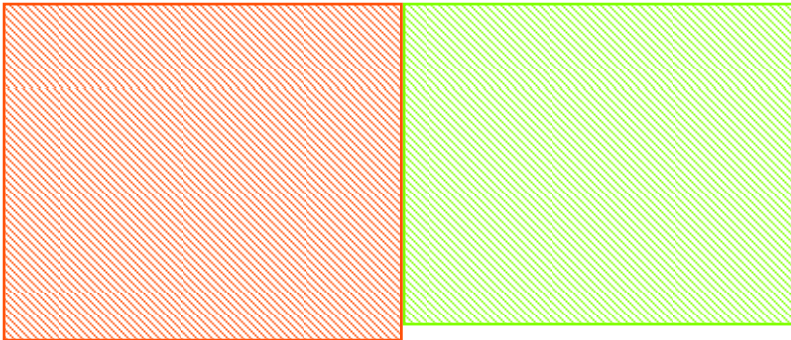
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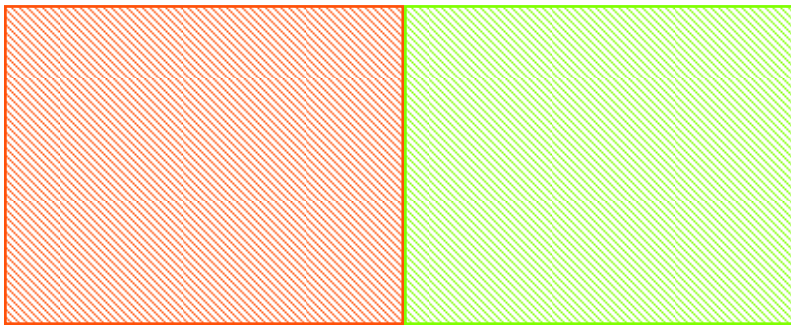


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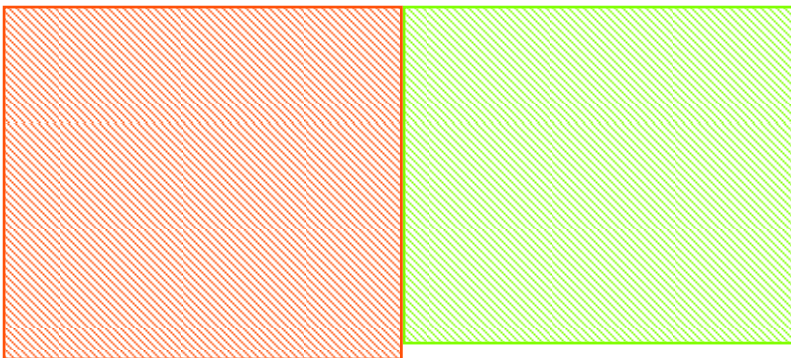
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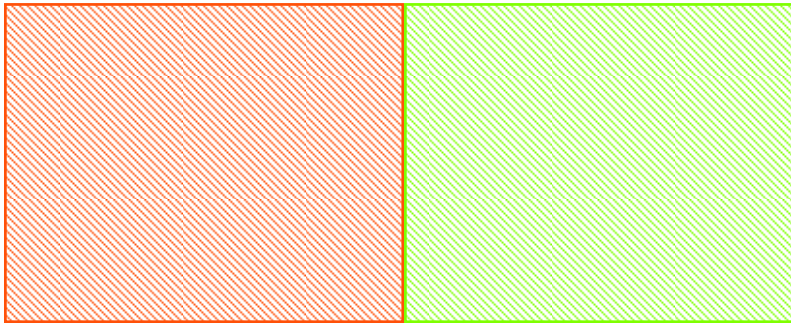


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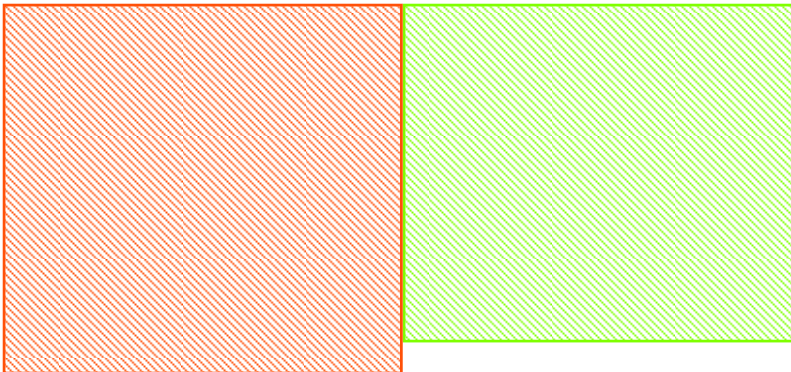
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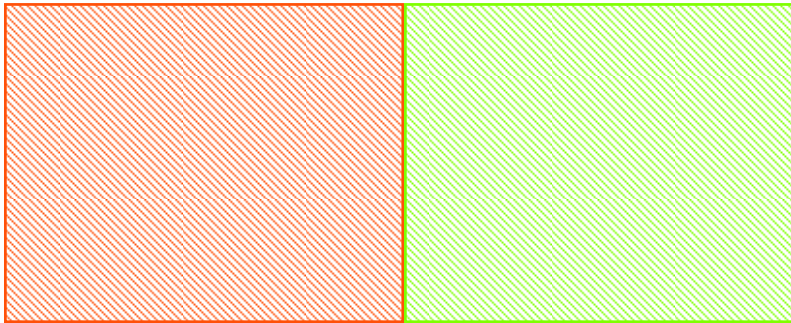


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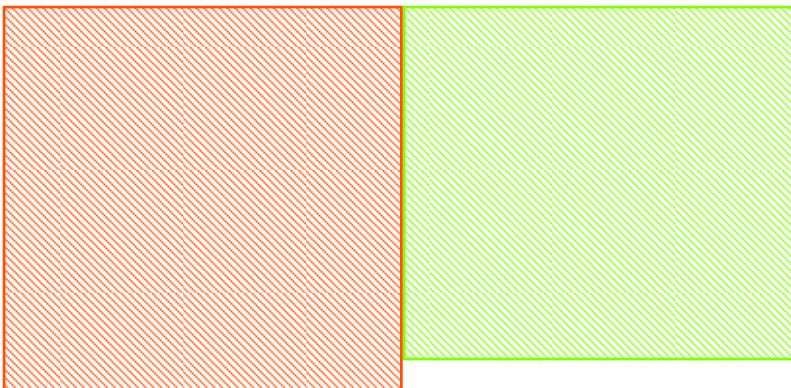
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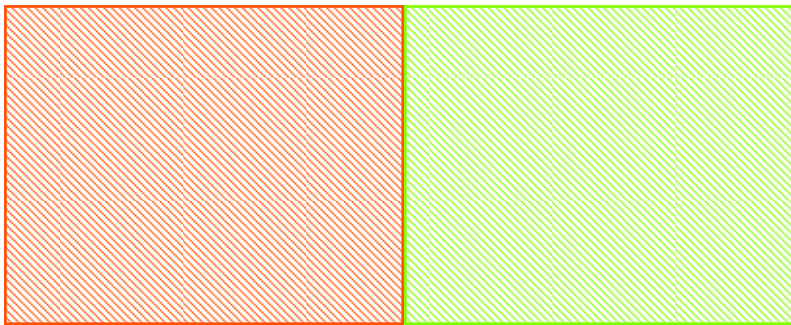


Step 2 - Outcome Space

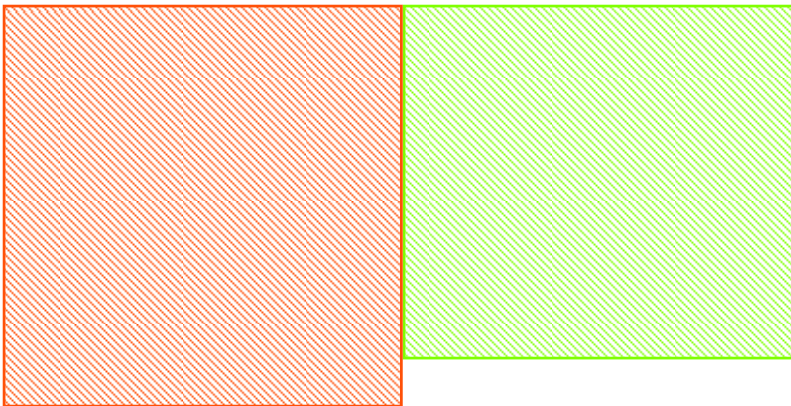
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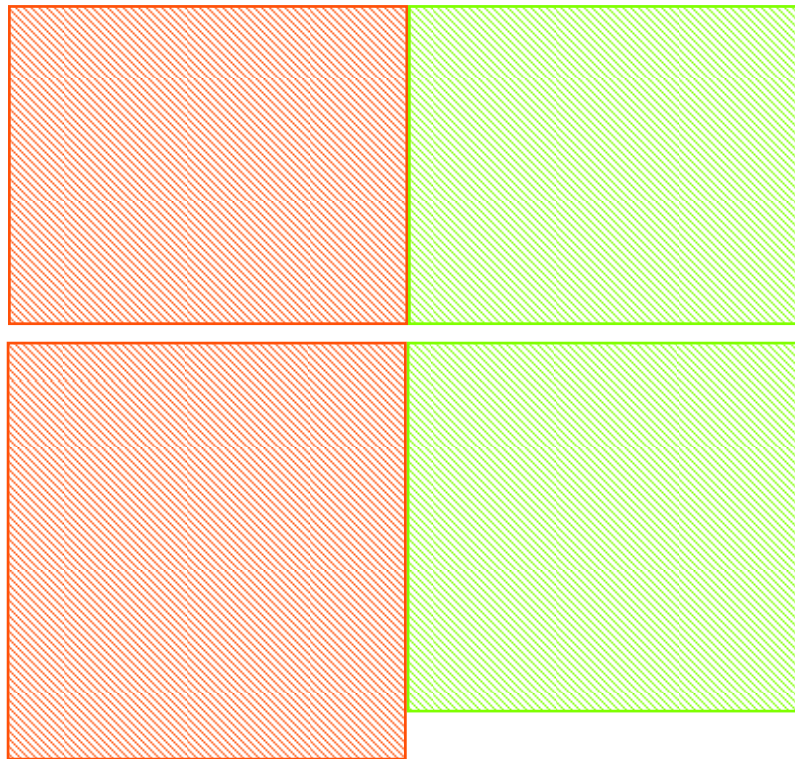
Step 2 - Outcome Space

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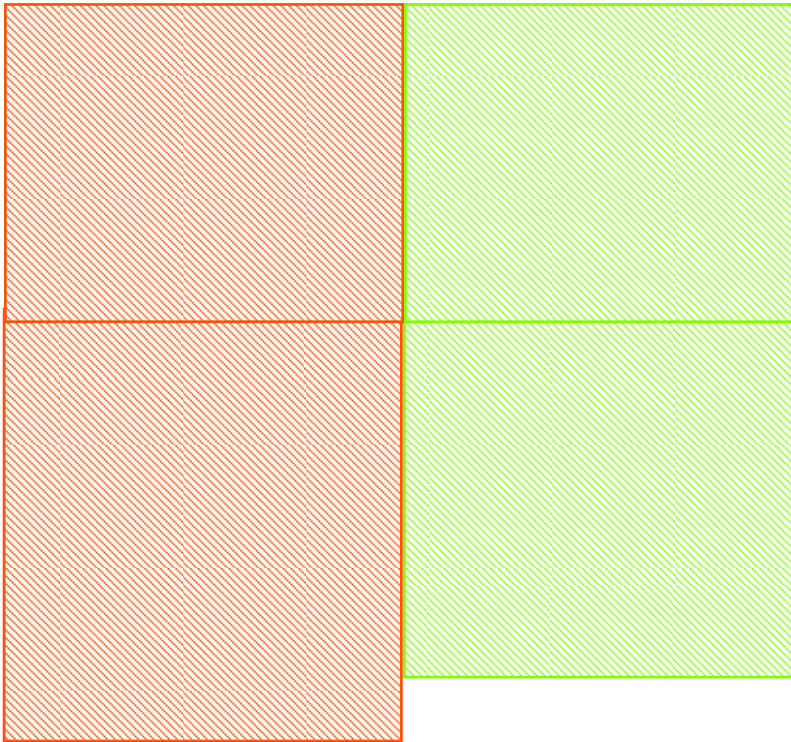
Step 2 - Outcome Space

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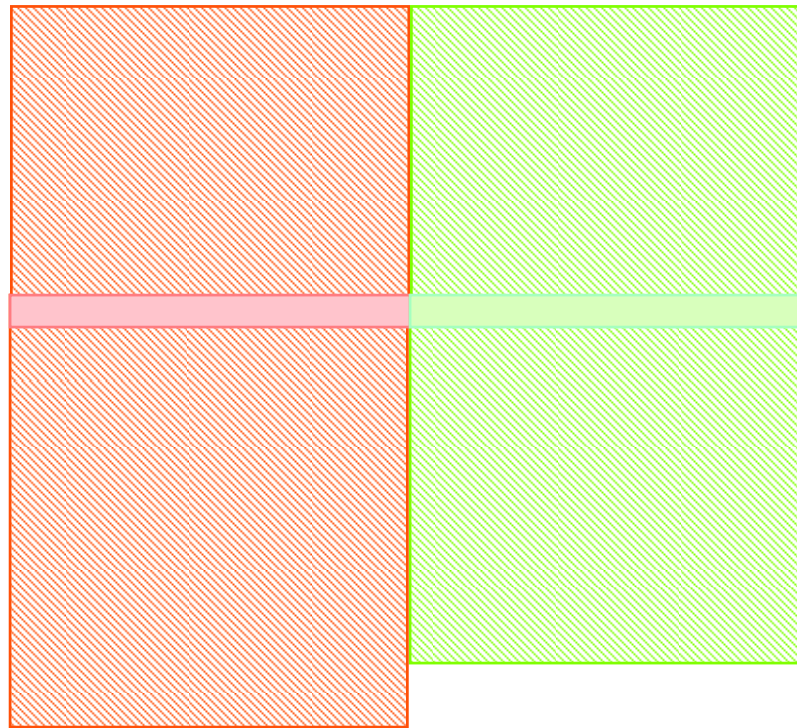
Step 2 - Outcome Space

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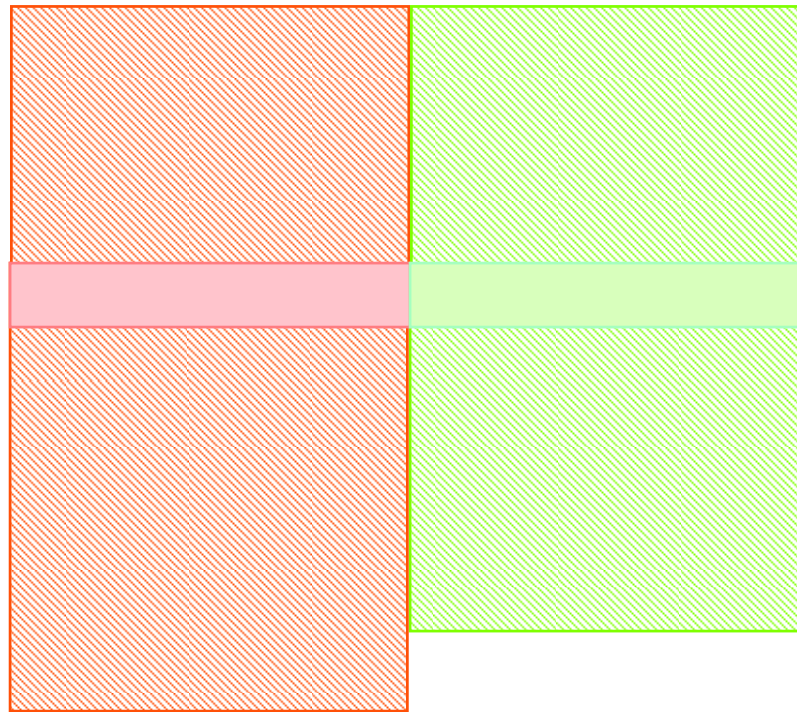
Step 2 - Outcome Space

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Step 2 - Outcome Space

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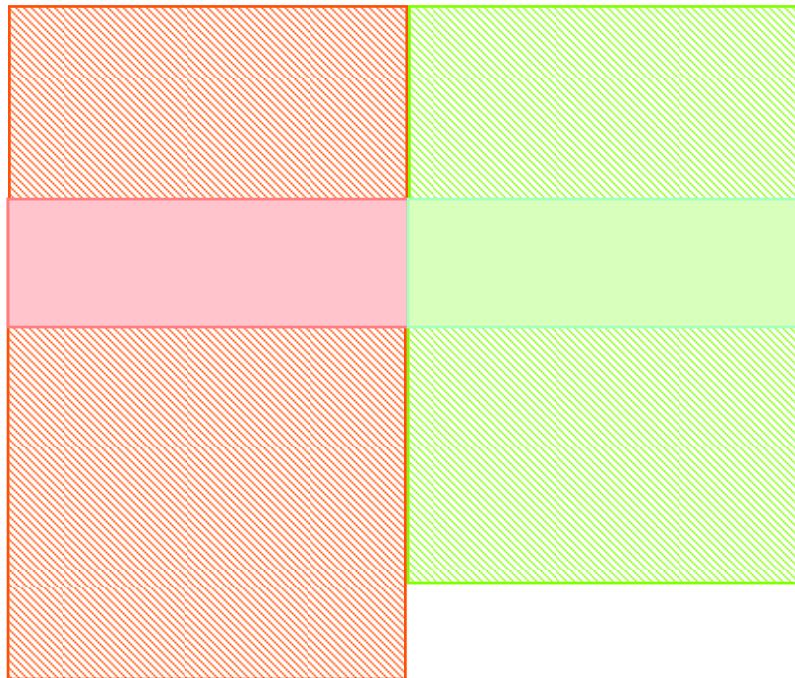
Step 2 - Outcome Space

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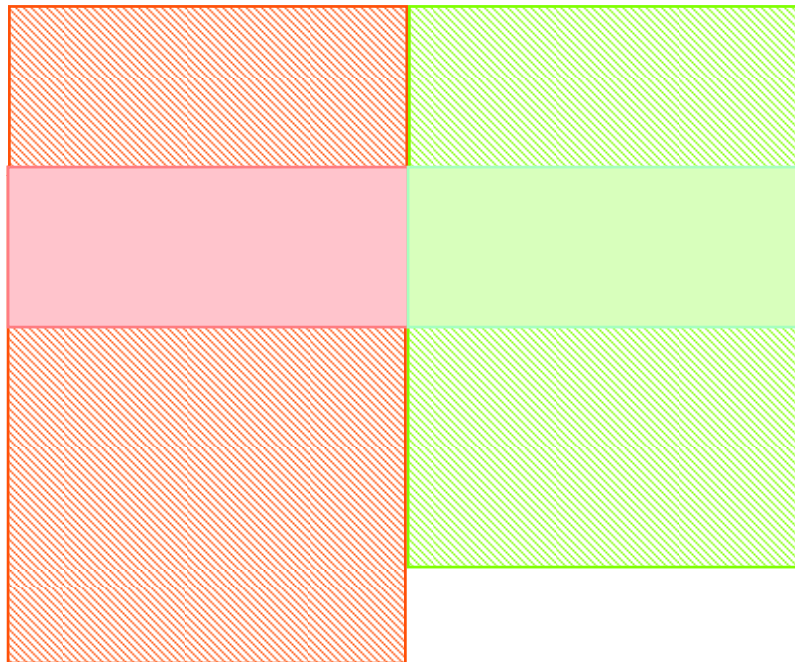
Step 2 - Outcome Space

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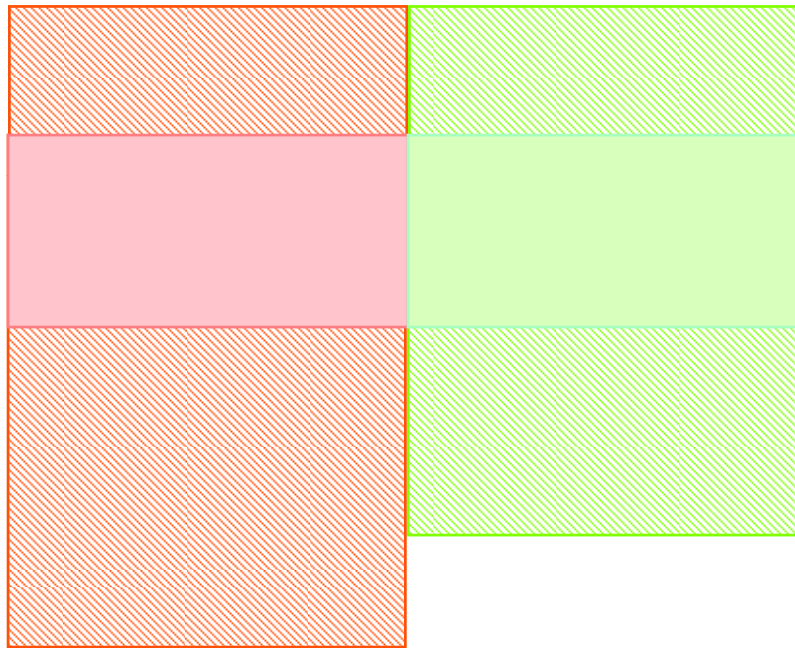
Step 2 - Outcome Space

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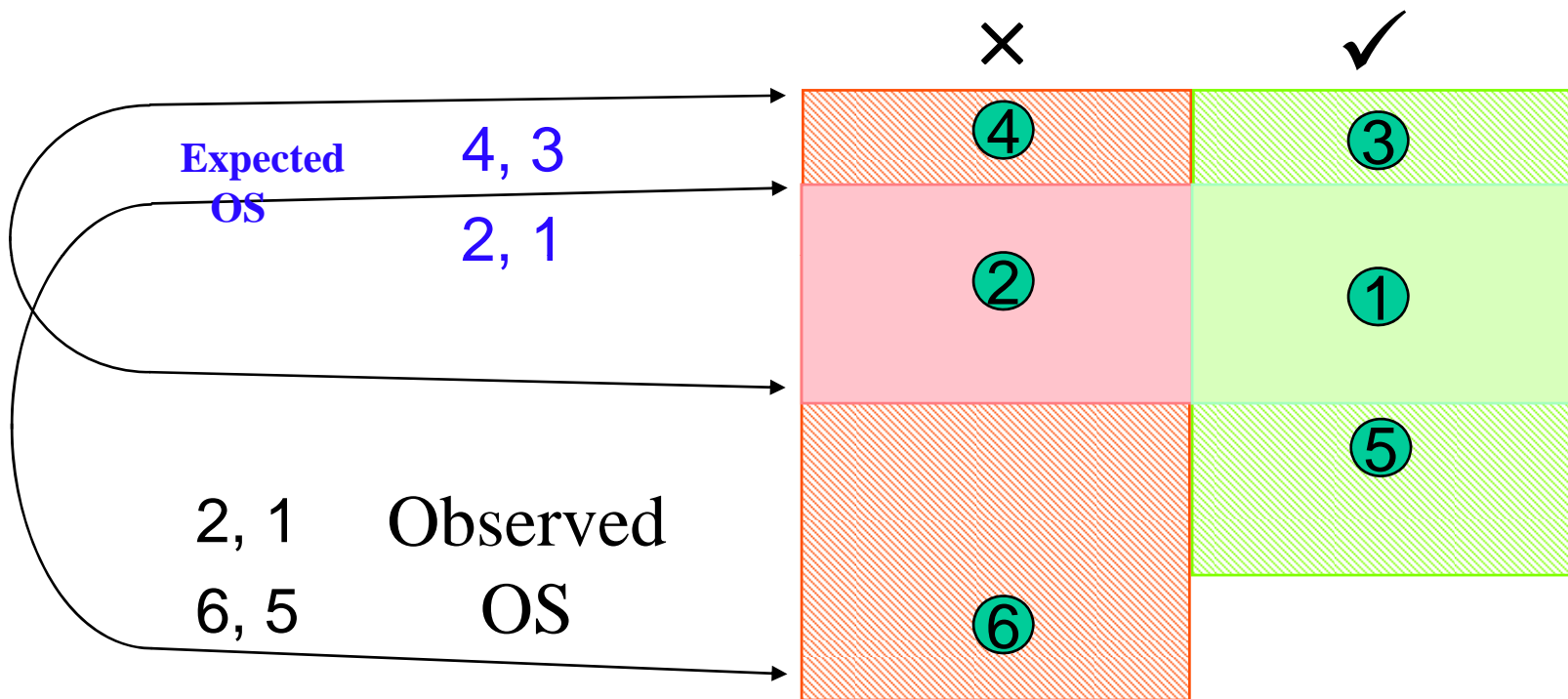
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Expected
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Step 2 - Outcome Space



'Adding value' - Outcome Space

How could TAC add value?

Key is - Value for the target market segment

–Young people, their parents and leaders

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Evidence of poor understanding of business:

- Things that don't add value
 - eg sell more holidays,
 - reduce prices,
 - special offers
- Wrong market segment

✓

Evidence of good understanding of business:

- Better standard of accommodation
- Better food
- Safety measures
- More activities on offer
- Improve brand image

Step 3 - Mark scheme

An exam question can only contribute to valid assessment:

if the students' minds are doing the things
we want them to show us they can do;

**and if we give credit for, and only for,
evidence that shows us they can do it.**

Construct relevance

Valid exams must measure the trait -
“achievement in X”

- “Marking” must mean giving marks when we see evidence for *more of the trait*
- For a particular question the OS describes: what *more of the trait* means in this case

Mark Schemes

- Cover entire Expected Outcome Space
- Help markers deal with **any** response they meet
- Different MS types for Different Q types

Type 1 Very Constrained

- ‘objective’ questions

Type 2 Semi-Constrained

- ‘in-between’ questions

Type 3 Un-Constrained

- ‘free response’ questions

Mark Scheme typology for Semi-Constrained questions

- Type 2 Points - content and/or quality**
- 2.0 No guidance / Model answer
 - 2.1 List of good answer elements (points)
 - 2.1a Examples
 - 2.1b Complete
 - 2.2 List of good and poor answer elements
 - 2.2a Examples
 - 2.2b Complete
 - 2.3 Rules or principles

'Adding Value' - Mark scheme

1. Ways to add value

2. Development

(evidence of how well students understand 'adding value')

MS: Ways in which TAC plc can add value to their holidays:

Safety Record

Standard of accommodation and food

Good brand image/quality

Variety of activities

Candidates need to show that they understand the meaning of adding value i.e. creating a willingness in a customer to pay more for a holiday than the total cost of the inputs therefore making a profit. This could be through a good reputation for safety, high standards of accommodation and food. The ways in which they add value are mainly to attract young people, parents and leaders.

Step 4 - Questions

An exam question can only contribute to valid assessment:
**if the students' minds are doing the things
we want them to show us they can do;**
and if we give credit for, and only for,
evidence that shows us they can do it.

‘Adding Value’ - Question

3 a (iii) Describe **two** ways in which TAC can add value to their holidays. [4]

- *Add to mark scheme:*

1 mark for each method + 1 mark for development [4]

Command Words



- Choose CW based on the expected Outcome Space and the Mark Scheme
- Use a limited set - perhaps 20-30 - in general
- “Explain” – why it is dangerous

Business Studies Command words

N

%

explain	176	29.7
give reason	41	6.9
describe	34	5.7
calculate	31	5.2
discuss	30	5.1
what?	29	4.9
<complete the sentence>	23	3.9
state	20	3.4
evaluate	19	3.2
suggest	16	2.7
which?	16	2.7
why?	13	2.2

‘Adding Value’ - command words



- **Describe** the ways ?
- Would **Suggest and explain** have been better?

OSCA Theory



- If examiners used the proposed system
Outcome Space: Control and Assess it
- they wouldn't have had the problems shown in our Report

Classification of Problems

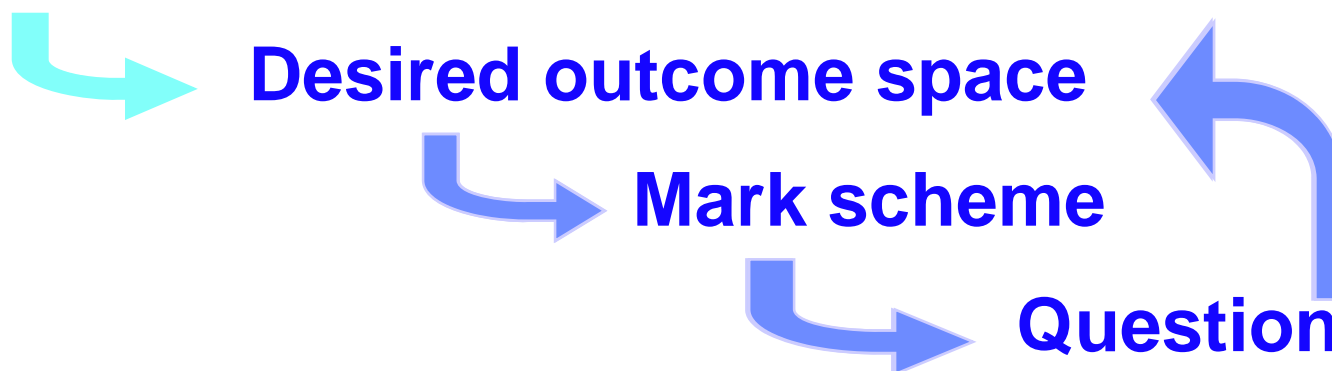


1. Inadequate mark schemes
2. Failure to control students' thought processes
3. Mismatch between question and mark scheme

Conclusion

- **Outcome Space Control and Assessment**
- The Outcome Space is crucial to creating both the mark scheme and the question
- How to write an exam question

Idea of task



Improving the quality of GCSE Assessment



**The end,
Thank you**

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