

The logo for STAR WEST, featuring the words "STAR" and "WEST" stacked vertically in a bold, white, sans-serif font inside a black square with a white border. The square is set against a background of yellow and orange sunburst rays.

SEPTEMBER 29–OCTOBER 3, 2008
DISNEYLAND® HOTEL

Anaheim,
California



TK1

Keynote

Thursday 10/02/2008 8:30 AM – 9:30 AM

Branch Out Using Classification Trees

Presented by:

**Julie Gardiner
Grove Consultants**

Presented at:
STARWEST 2008
September 29 – October 3, 2008, Anaheim, CA, USA



330 Corporate Way, Suite 300, Orange Park, FL 32043
888-268-8770 • 904-278-0524 • sqeinfo@sqe.com • www.sqe.com

Julie Gardiner

Julie Gardiner has over 18 years experience in the IT industry including time spent as an analyst programmer, Oracle DBA and Project Manager. She has first hand experience as a test analyst, test team leader, test consultant and test manager.

Julie now works for Grove Consultants where she provides consultancy and training in all aspects of testing, specializing in risk-based testing, agile testing, test management and people issues. She is also a certified SCRUM master.

An enthusiastic and motivated presenter, Julie won best presentation at STAREAST 2005 for her session on Risk is a tester's favorite four letter word. She also won best presentation at BCS SIGiST 2005, best tutorial at EuroSTAR 2006 and best presentation at STAREAST 2007.

STARWest 2008

Branch out using Classification Trees for test case design

Julie Gardiner

Grove Consultants
26 Fallowfield
Orton Wistow
Peterborough
PE2 6UR. UK

Tel +44 7974 141436

email: julie@grove.co.uk

© Grove Consultants

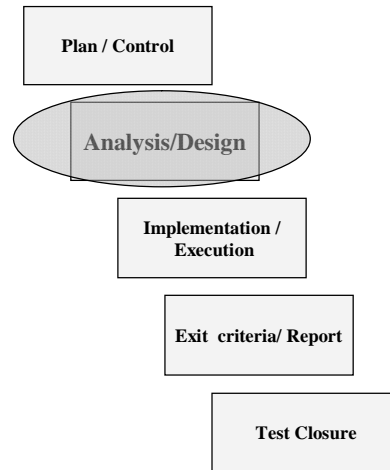
Challenges we have as Test Managers

- Convincing management scope of testing
- Constant changes in projects
- Explaining testing to others
- Obtaining sign off from customers/business
- Plus many others...



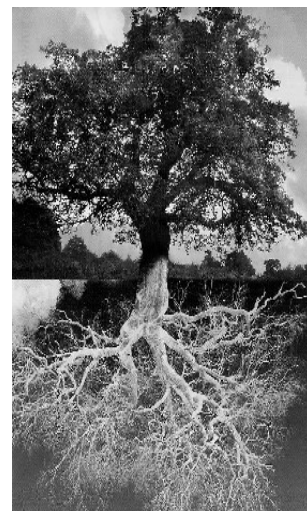
Challenges we face in test design

- Resources available
- Time (design and execute)
- Too many tests
- Too few tests
- Maintenance of the tests
- Where to start
- Lack of prioritisation
- What techniques to use



Interesting information about trees

- They help to conserve energy
- Various items can be produced using trees
- Tree rings can provide precise information
- Help to reduce air pollution
- Help to maintain a favourable climate



Interesting information about classification trees

- **They help to conserve the tester's energy when generating and maintaining test cases**
 - **Various test items can be produced using classification trees**
 - **Classification trees can provide precise information about coverage**
 - **Help reduce documentation pollution**
 - **Help to maintain a favourable climate with the business users**
-

Background to CT

- **Developed from Category-Partition Method by Ostrand and Balcer 1993**
- **Systematic approach to test case design**
 - complements other techniques
- **Used in many industries**
 - aviation, rail, space technology and data processing applications
- **My background with CT**

Benefits & rewards from using CT

- **Maintenance of test cases**
 - easier & more cost effective
- **Visibility of testing scope**
 - for new projects
 - regression testing
- **User buy-in**
 - great visual for gaining acceptance
- **Powerful tool support for CT (some are free!)**
 - CTE exports to other testing tools



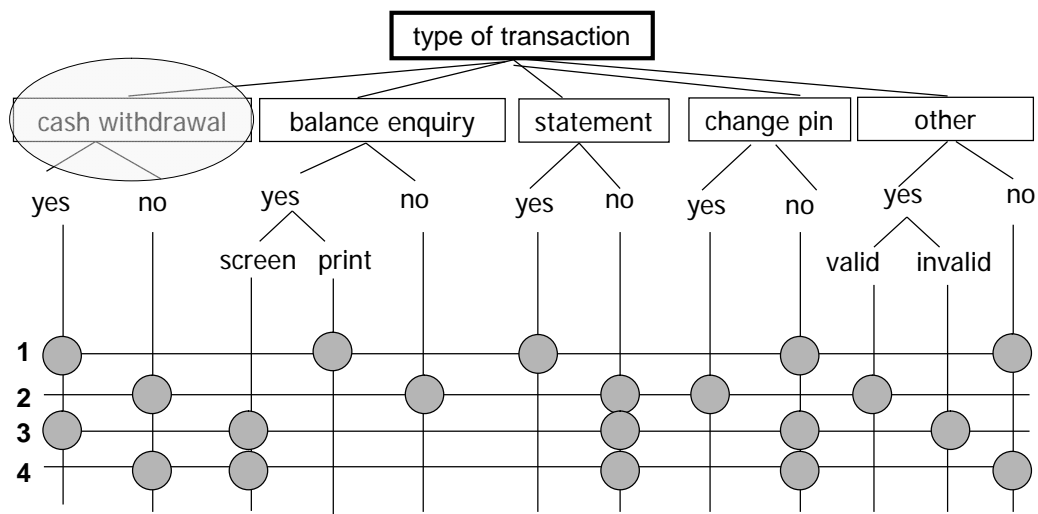
Fundamentals of CT

1. **Choose test object e.g. component or system function**
2. **Determine input domain**
3. **Determine relevant factors affecting testing**
4. **Form classifications by partitioning input domain into classes**
5. **Apply 3. and 4. recursively as appropriate**
6. **Form combination table from classification tree and identify test cases**

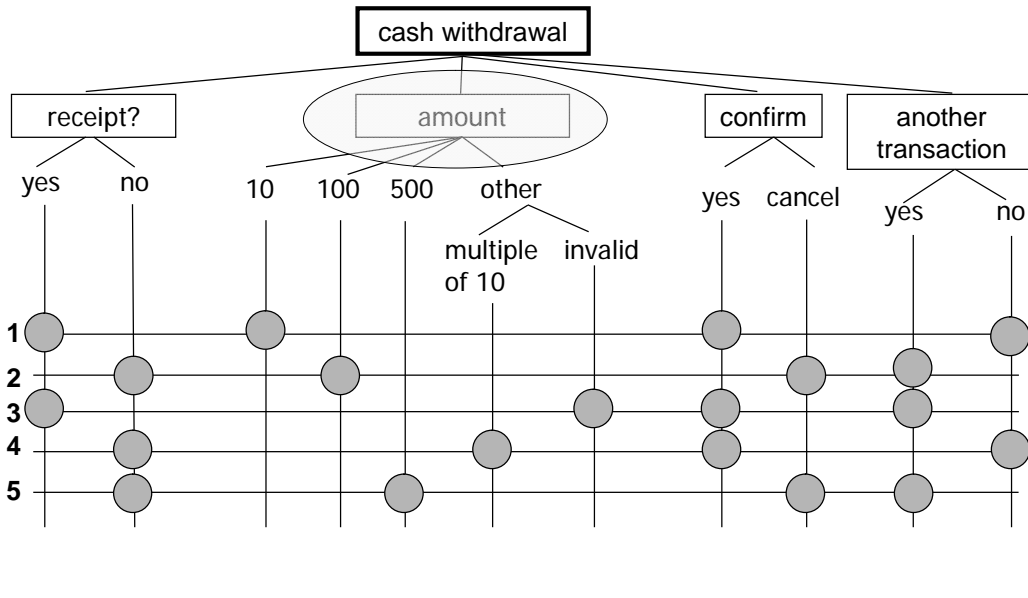
Example – ATM machine



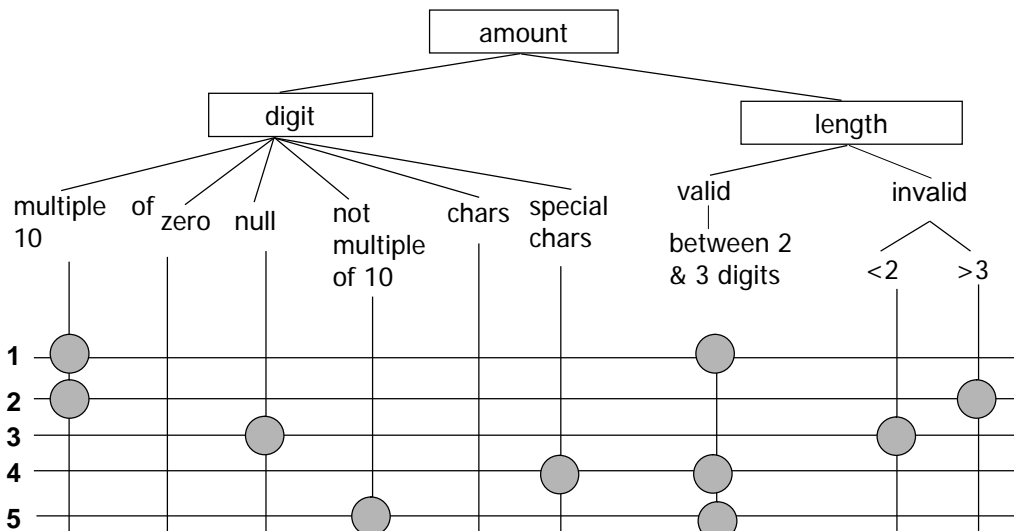
Classification tree - business tests



Classification tree - functional test



Classification tree - component test



Example

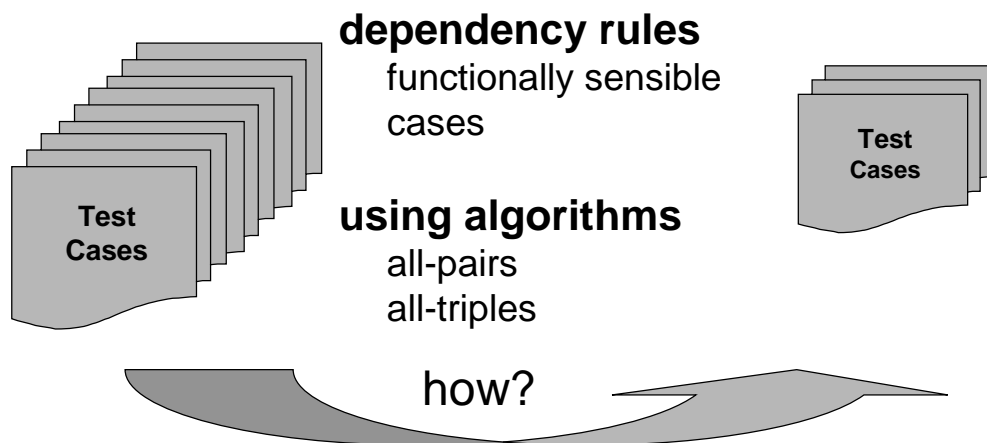
- **Project – edge of the insurance/re-insurance market**
- **Lots of discrete parts of the system, which is policy admin**
- **Several key choices**
 - rules about which could go with which
 - decision made to use CT and make sure that all possibilities were considered

Source: Peter Morgan, independent consultant - UK

What the critics say...

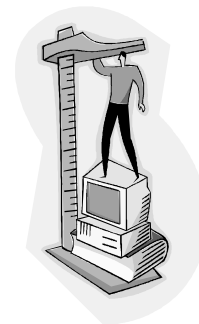
- **Isn't this just Equivalence partitioning (classes)?**
- **What about Boundary Value analysis?**
- **How does it fit with other techniques?**
- **Can you use it in exploratory testing?**
- **What about non-functional testing?**
- **Too many tests are produced (some unrealistic)**
- **Others?**

How can we reduce the test cases?



Dependency rules

- **What are they?**
 - rules that make certain combinations infeasible
- **Why should we use them?**
 - make sure the tests we want to develop have value
- **How do we apply them?**



How to apply CT to various lifecycles

- **Traditional**
 - requirement specification
 - a tree for every piece of functionality?
 - **Agile**
 - user stories
 - a tree for every story?
 - use cases
 - a tree for every actor or business scenario?
-

Top tips when starting to use CT

- **Get a copy of the tool:**
 - www.systematic-testing.com**
- **If your trees become too large**
 - break it down with references to the higher level tree (folding)
- **Start off small (high level)**
- **Give yourself time to apply the technique**

When to use (or not use) CT

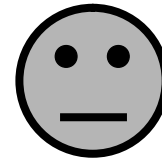
■ **Use it when...**

- maintenance of test cases is difficult
- discussing test conditions
- raising profile of testing to managers
- you are keen to get buy in from users



■ **Do not use it...**

- when riding a motorbike (it is dangerous!)



Summary: key points

- **classification trees is a graphical way of showing test cases**
- **can be applied at any level of testing**
- **it could be used in any organization**
- **it might complement other testing techniques**
- **use it to raise visibility of test cases and improve maintainability**

Branch out using Classification Trees for test case design

Thank you!

Julie Gardiner

Grove Consultants
26 Fallowfield
Orton Wistow
Peterborough
PE2 6UR. UK

Tel +44 7974 141436

Julie@grove.co.uk
