



**Australian Government**

**Department of Defence**

Defence Science and  
Technology Organisation

# Standardised Tactical Vignettes to enhance International Defence Studies

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**DSTO**

# Vignettes

**Scenario: strategic context for capability development planning**  
- too abstract for analysis  
- often highly classified

**Vignette: plausible snapshot of an action during a scenario that is likely to comprise combinations of TTPs**  
- right level for analysis and exchange  
- lowest classification

**Tactics, techniques and procedures (TTPs): fine detail for Army actions**  
- too numerous to analyse each one  
- mildly classified

# Purpose of the presentation

**Propose some good reasons for a common vignette set to share so that we can save resources and be interoperable**

**Identify some desired characteristics of a vignette set**

**Identify some ways to classify and describe vignettes**

**Report on a proof of concept study using infantry actions as the example**

- Feasibility of the method**
- Sample vignette list**

**Initiate debate!**

# Possible reasons for a common set

**They represent a list of standard use cases for testing new TTPs, organisations or technical insertions**

**They provide a set of test cases to audit analytic capability**

**They can be used as external references to compare wargames and simulations (including updates)**

**They introduce a common feature so that studies from allied nations can be exchanged and compared, thus leading to a corpus of reference material and interoperability of analysis**

**Reduced development time if a vignette already exists and is documented**

**Accreditation of fitness for purpose to explore specific items**

## Characteristics we're looking for in a vignette list

- 1. Encompasses many, if not all, military actions likely to be of interest to the analyst**
- 2. Is of manageable length**
- 3. Contains enough detail to be able to compare studies**
- 4. Contains enough flexibility to allow changes in TTPs, equipment and environment**
- 5. Is compatible with possible wargaming/simulations formats**
- 6. Uses language that is compatible with both the analyst and Defence user community**

# Possible approaches to describe and find vignettes

**Environment as  
primary descriptor**

**Action as  
primary descriptor**

<b>Environment based <i>Ab initio</i> selected</b>	<b>Action based <i>Ab initio</i> selected</b>
<b>Environment based Usage selected</b>	<b>Action based Usage selected</b>

**Source by first  
principles  
combination**

**Source by what  
has been of  
interest in the past**

# Environment v action

Environment	Action
<b>For</b>	<b>For</b>
Common wargaming terrain	Focussed on metrics for the action
Allows inspection of real differences between actions	Meaningful to the clients
Potential for a (closed?) reduced set	
<b>Against</b>	<b>Against</b>
Loss of detail	Overhead in terrain development
	Open ended - potential for too many items

# Ab initio v usage

<i>Ab initio</i>	Usage
<b>For</b>	<b>For</b>
Covers all possibilities - nothing missed	Proven items of interest
Creative - new things may appear	Allows identification of commonalities and avoidances (for grouping)
	Can find the fundamental unit by exploration
<b>Against</b>	<b>Against</b>
Large number of combinations (but anomalies can be reasonably reduced)	Bias by the nature of the studies
Identification of the theoretical fundamental unit problematic	Reactive - no new actions or changed procedures/settings



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**First principles  
combination**

**What has been of  
interest in the past**

# Our study/vignette set

**33 unclassified studies in the LOD corpus containing 54 vignettes of which 43 had infantry action included in them.**

**Studies were targetted towards three generic enquiries:**

- **exploration of a concept**
- **equipment insertion**
- **force organisation**

**Often these were addressed by testing a given force to achieve a specific mission**

**The types of studies were:**

- **agent based distillations (MANA)**
- **human in the loop wargames (CAEn/OneSAF)**
- **closed loop simulations (CASTFOREM)**
- **computer assisted wargames (jSWAT)**
- **live exercises**

# Base data

Usages: infantry studies conducted by Land Operations Division since 1994

Actions: examination of *Doctrine* provided 60 tactical tasks (TT):

- 20 offensive actions (eg ambush)
- 18 defensive actions (eg defend a strongpoint)
- 22 stability actions (eg crowd control)

Further delineated into tactical actions (13) and tactical techniques (47). Some of these are more generic than the others and thus the same event may be coded by more than one TT. Most vignettes contained a number of TTs (spread 1-11).

Other descriptors:

- Environment (eg open rural)
- Activity (DSTO term - eg assault)
- Force size (eg platoon)
- Narrative goal

*Two analysts examined the reports to come to a consensus on the classifiers.*

# An example of a study

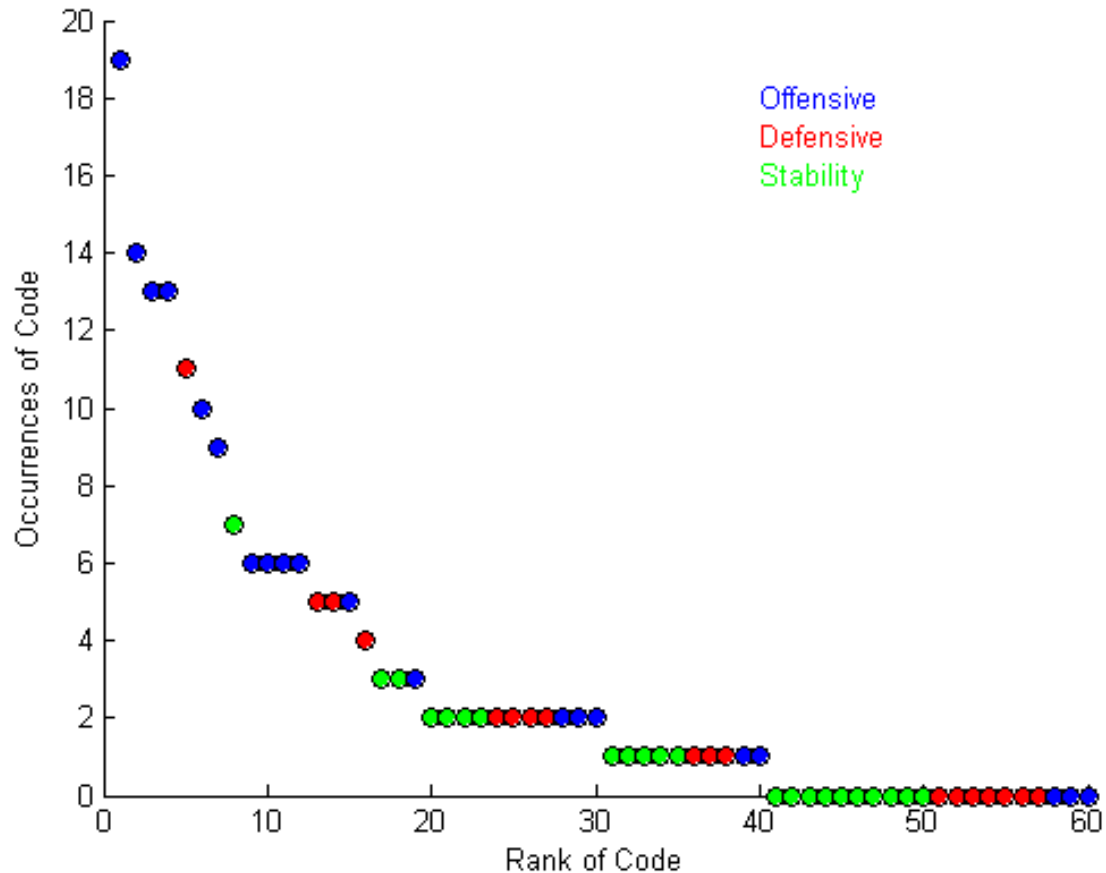
**A Blue Motorised Rifle Company (of about 100 soldiers) is tasked to clear and capture a segment of the Tennant Creek township occupied by a Red Strike Platoon (of about 30 soldiers).**

- **Both forces are able to draw upon their battalion support elements**
- **Blue force starts from defensive position outside the town**
- **Buildings in the town will be methodically cleared and seized**

## **Coding:**

- **Tactical tasks: Advance to contact, attack by fires, support by fires, sweep, seize location**
- **Environment: low density urban**
- **Forces: C+ (blue) P+ (red)**
- **Activities: Fire support, Assault**

# Occurrence of Codes within the Vignettes



**Tactical actions (Offensive 3/5; Defensive 3/4; Stability 3/4)**

**Tactical techniques (Offensive 14/15; Defensive 8/14; Stability 9/18)**

**Overall (Offensive 17/20, Defensive 11/18; Stability 12/22) ie 40/60.**

# Most frequent Tactical Tasks

## Tactical Actions:

- (Offensive) Deliberate attack 14; Quick attack 9; Advance to contact 6 (29 of 29 hits)
- (Defensive) Area defence 2; Mobile defence 2; Withdrawal 2 (6 of 6)
- (Stability) Control 3; Restore 2 (5 of 6)
- *Not all studies could be matched against a tactical action*

## Tactical Techniques

- (Offensive) Support by fires 19; Attack by fires 13; Seize locations 13, Sweep 9 (53 of 87)
- (Defensive) Patrol 11; Surveillance 6; Route security 5; Defence in sector 4 (26 of 31)
- (Stability) Population interaction 7 (7 of 19)
- *Not all studies could be matched against a tactical technique*

# Correlations

**Deliberate Attack correlates well with Support By Fires, Sweep and Seize Locations**

**Support By Fires correlates well with Sweep and Seize Location**

**Sweep correlates well with Seize Location**

**Attack By Fires correlates well with Support By Fires**

**Patrol has almost no correlation with any of the offensive tasks**

*NB just may be a reflection of doctrine....*

# Other features in detail

## Activities:

- Assault 24
- Fire support 15
- Tactical move 7, Ambush 7
- Rest  $\leq 2$

## Terrains:

- Open rural 26
- Urban low density 16
- Closed rural 6
- Urban high density 4

## Blue forces:

- Coy+ 9
- Bn+ 8, Pln+ 8
- Sn+ 6



# The minimum spanning set of vignettes by tactical task

Study rank

TR-1672

GD-0169

TN-0634(2)

TR-1977

TR-1267

RR-0277(1)

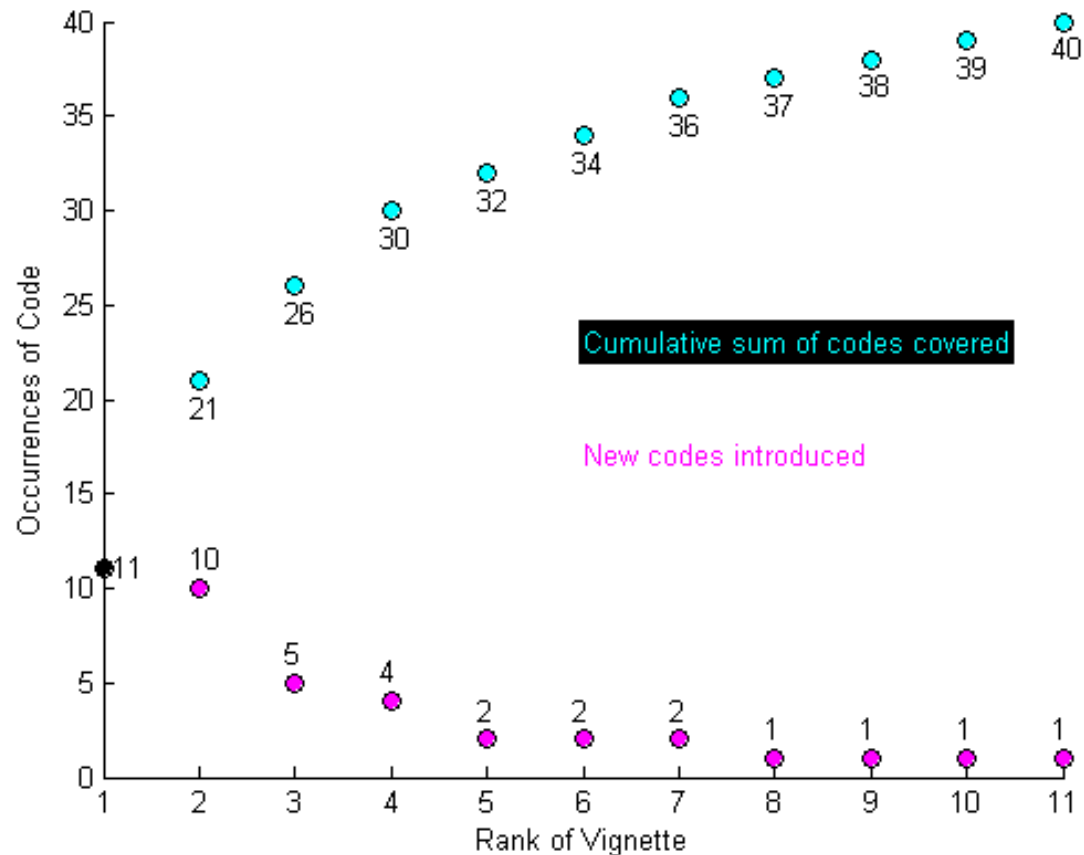
TN-0634(3)

TR-0983

TR-1902

TR-1943(3)

TN-0634(1)



**Method: the greedy algorithm – TR-1672 (jointly) has the most codes (11) so accommodate that first. Of all the rest, if we add GD-0169 then we increase the number of codes covered the most etc**

# What does this (top 6) set look like?

	Tactical action	Tactical technique	Activity	Environment
TR-1672	<u>Offensive</u> : Quick attack	8 Offensive 2 Defensive	MO; FS; AS	Open rural
GD-0169	<u>Defensive</u> : Area defence	1 Offensive 4 Defensive 4 Stability	OP; CP; AM	Open rural
TN-0634(2)	<u>Offensive</u> : Advance to contact <u>Offensive</u> : Deliberate attack	6 Offensive 1 Stability	FS, AS	Urban low density
TR-1977	<u>Stability</u> : Control <u>Stability</u> : Restore	3 Offensive 2 Stability	MO; DE; FS, AS	Open rural; Urban low density
TR-1267	<u>Offensive</u> : Deliberate attack <u>Defensive</u> : Withdrawal	1 Offensive 3 Defensive	FS, AM	Open rural
RR-0277(1)	<u>Defensive</u> : Mobile defence	4 Offensive 1 Defensive	AM	Open rural

## Comments

**The top 6 when grouped together:**

- **Covered 7 of the 9 total tactical actions**
- **Covered 7 of the activities (12 were found in total). Fire support and assault occurred several times**
- **No close rural nor urban high density terrains**
- **Covered 34 of the 60 total possible TTs (or 40 that were found)**
- **Could be complemented by selection of some of the specialised vignettes for better coverage – some TTs may never be found in combinations and thus would not be significant to the greedy algorithm route**

# Discussion points

**Method:** the attribution to the TT by the two analysts was variable – one tended to include more than the other

**Tactical tasks (TT):** did not prove as useful as had been expected, even if they were from doctrine. Too many to be useful. Going to one or other of the tactical actions or techniques didn't cover all the studies.

**Example set:** somewhat restrictive – not covering the likely analytical space very well. Variations on a theme may have biased the occurrences. Not all the TTs were found.

**Vignette list:** the top six cover many of the TTs but it is not clear if they represent a sound list that properly examines likely analytical questions. Concerns include:

- Spread of actions
- Relevant combinations of actions
- Treatment of dominations and redundancies

# Conclusions

(For the studies we looked at) The tactical tasks (TT) are *not* suitable as the *analytic* fundamental building blocks to describe vignettes:

- Two distinct types
- Difficult to assign
- Too many
- Not treated at the same level
- Variable level of detail
- *Not holistic*

## Next steps

Examine the TTs to see if they can be refined in some way to become the fundamental unit

- Reduce the number through combinations?
- Remove those that are dominated by others?

Re-examine the usage cases by the revised classifiers list to see if a “better” list appears

- Covers more things
- Covers more combinations
- Include the classified studies

Explore means other than the greedy algorithm to derive the vignette list

Explore combinations of TTs to see if any comment can be made on those that always or never appear together thus leading to a reduced set via the *ab initio* approach

Re-examine the environment-led approach

- Eg for terrain times 2/ intensity times 2/ blue “action type” times 2, what are the TTs that are compatible with the “action types”?



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# Acronyms

AM – Ambush

AS – Assault

CP – Check point

DE - Defence

FS – Fire support

MO – Operational move

OP – Observation post

TT -Tactical task