Investigating the Use of Clues for Scaling Document-Level Concern Graphs

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Requirements are represented in boxes.

Themes represent concerns (diamonds).

Used for inspecting aspects to identify crosscutting.
The Crystal Game

R63: each player wagers a crystal on the outcome of the duel.
The Need for Scalability

Theme/Doc Views can be large

There may be “higher level” (broader?) concerns to identify.
Degree of Crosscutting

Concern Relatedness

Sections Related by Concerns

Concerns Related by Section

Latent Clues in Text
Simple Summary
**Simple Summary**

**Uses:** same as original

**Affordances:**
might lead to dealing with all requirements the same way

**Scalability:**
more of a reduction than really “scalable”
Degree of Crosscutting

Theme/Doc:
Degree of Crosscutting
Uses:
showing breadth of concern-documentation; less useful for shared requirements

Affordances:
Might lead to assumption that crosscutting a document == crosscutting a code base.

Scalability:
Because even small viewing gives a “sense”, it provides some scalability, and some summarisation
Concern-Relatedness

R63: each player wagers a crystal on the outcome of the duel.
Concern-Relatedness

Uses:
More helpful in formal documents where granularity of requirements is fixed

Affordances:
Might suggest that a thicker line means subsume

Scalability:
Views could consist of just one degree of concern relatedness at a time.
Theme/Doc:
Section Relatedness
Section Relatedness

Uses:
Re-organization of document structure.

Affordances:
If organization is good, then relatedness could suggest crosscutting.

Scalability:
Expandable sections help scalability.
Concern Relatedness

Theme/Doc

C1

C2

C3
Concern Relatedness

Section
Game Play

join

end-game

leave

drop

R37
R35
R34
R33
R36

end-game

enter-location

duel

start

track-energy

join

display
Concern Relatedness

Uses:
Top-level view of concerns in the system.

Affordances:
Dashed lines show sections that need potential re-factoring.

Scalability:
Very compact, but information accessible.
Things that Might Help

Concern Relatedness

Crosscutting Requirement

weave

weave

Sutton: Cosmos

classes

classifications

properties

New Views:
* different concerns at a time
* different scales at a time

Provide better document refactoring

Brito & Moreira
Semantic Analysis

Things that Might Help

Topics

join
dueling
energy
winning

Latent Semantic Analysis

join
dueling
energy
winning
Things that Might Help

Continuous Fish-Eye Zooming

R65: Each player wagers a crystal on the outcome of the duel
Final Thoughts…

Dependency on Good Writing?
More so than before because placement matters

inter-sectional==crosscutting?
Maybe…
If structure == architecture…
If structure == use cases…

Scalability?
The last one seems the most promising, and is most expandable
Need more studies…