# Outline

Abnormal举例里面包括这种情况：我vote no给父特征，导致它的子特征在我这边是孤立的。

最后的例子里面， programmer精化了streaming media的protocol

**For each part --**

**Background: Previous story and what’s next.**

**Problem**

**Solution: (1) Basic Idea. (The whole picture)**

**(2) Details.**

**调整第4节为process，去掉cscw介绍**

1. Introduction

Consensus Facilitation举例：高亮显示divergence，事实上就是在引导用户的工作重点，从而有利于consensus，就像wiki页面上的“Controversial”标签

2. Preliminaries

2.1 Core Concepts of CSCW Systems

2.2 A Meta-Model of Feature Models

3. The Conceptual Framework

3.1 The Meta-model of Extended Feature Models (EFMs)

3.2 Operations on EFMs

Basic-----

2 operations: creating and voting.

Meaning of voting;

Impact (result) of the operations; (non-tree model, indicator, by example)

Advanced ------

Undo Rule;

Implementing other operations by example;

Vote propagation rules, (intention, example usage for each rule, anti-vandalism)

Vote-Once Rule;

There are elements. 2

There are creating and voting operations. 2

Features are identified by name sets.

Voting means a yes or no choice. 2

We have no modifying or overwriting operations. 2

--Meaning of the results-- 2

The EFMs are no longer forests because of creating + voting

Meaning of result of vote: indicator of variability because of creating + voting

Meaning of voting action: a yes or no choice. (This is an operation, should belong to 3.2)

We should use small examples to show implementation of other operations through the basic ones.

把divergence当作optionality的一个初始值？

3.3 Views for EFMs

4. The Coordination Mechanism

(Overview)

4.1 Activity-level Coordination

Stakeholder activities: Submit operations, Switch between views, Communicate (comments, discussions)

Supporting activities: Maintain sessions, Update views, Verify working views, broadcast operations

Guidelines:

Switch to private view to get snapshots.

4.2 Object-level Coordination by example

Create-create: 1 creates A, 2 create A, 1’s change seen by 2

2 vote yes on A

Create-create: 1 create N for F1, 2 create N for F2, 1’s change seen by 2

2 create failed, and informed.

Create-Vote: 1 vote no on F1, 2 create R for F1, F2

1 vote no on R

Vote-Vote: 1 vote no on A, 2 vote yes on A -- OK, no problem

VV: 1 delete A, 2 vote yes on A, 1 update EFM, 2 update EFM

当yes到达EFM的时候，EFM里面已经没有A了，这个时候就会出问题了。（edit优先还是删除优先的问题）

VV: 1 delete F1, 2 vote yes on R(F1, F2)

Vv: 1 delete A, 2 vote no on A

Problems: by example (use a table)

False Deletion

False Undo

Delayed yes vote: A vote YES to relation R(F1, F2), before it is propagated to F1, F1 is voted to 100% NO. A 以前投了一个NO to F1，现在又改投YES to R，这时候不管是all 100% = delete，还是current 100% = delete，都会有这个问题。 **还要注意类似的Propagation延迟导致的协同问题，即**：

Vote ---------> ( Propagating…) --------> Extra Vote

这中间别的操作导致了extra vote作用的对象将消失，或者new vote与extra vote冲突（ 这个问题是容易解决的）

Revived Deletion: delete in a session, then in the same session, create the feature/name again

解决方法：可能只能用Session-Based，在一个Session里面暂存着所有被delete的东西，我可以恢复。

5. A Case Study

Video player software domain,

用表格来说明一步步的活动？

6. Related Work

*Traditional Feature Modeling*

*Collaborative Ontology Construction*

*Collaborative Requirements Elicitation and Modeling*

7. Conclusions and Feature Work