



StoViz The Story Visualisation System

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Motivations

■ *StoViz*

- Goal : Stoviz was developed in order to evaluate the video structuring algorithm performance
- Principle: Story-based browsing of TV series
 - Visualize the structure of an episode
 - Play one story at a time
 - View an abstract of the episode

Definitions

- Shot : video sequence taken without interruption.
- Scene : group of consecutive shots describing temporally continuous and semantically coherent events.
- Story : group of scenes, not necessarily contiguous, showing a strong semantic relation.

Shot < Scene < Story < Episode

Related works and novelty

Browse by topic in TV News



[Misra et al. (2010)] : TV News Story Segmentation Based on Semantic Coherence and Content Similarity

A = Anchor

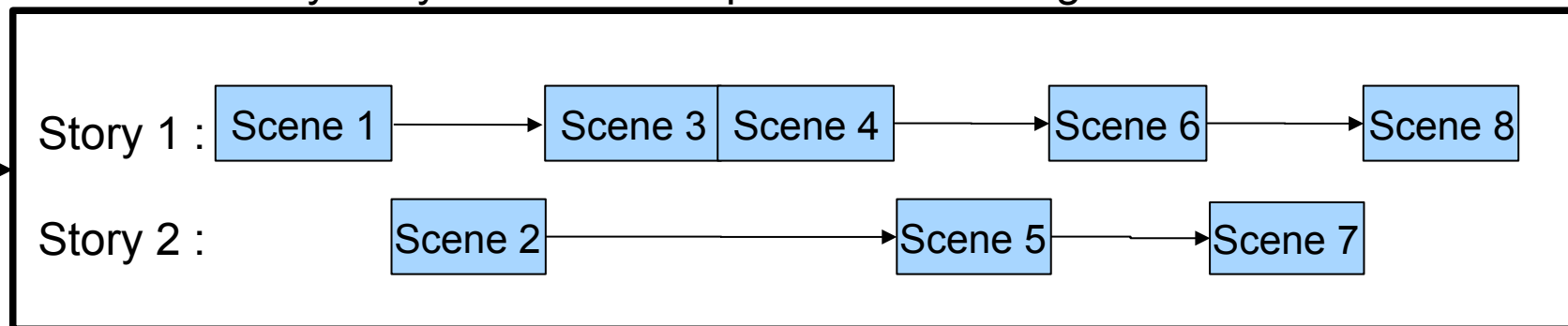
Browse by punchline in sitcoms



[Friedland et al. (2009)] : Joke-o-mat: Browsing Sitcoms Punchline by Punchline

L = Laugh

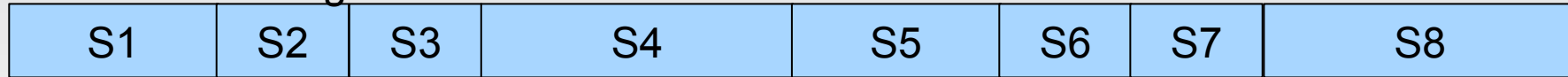
Browse by story in TV series : plot de-interlacing



Our proposition : [Ercolessi et al. (2012)] : Toward plot de-interlacing in TV series using scenes clustering

Plot de-interlacing

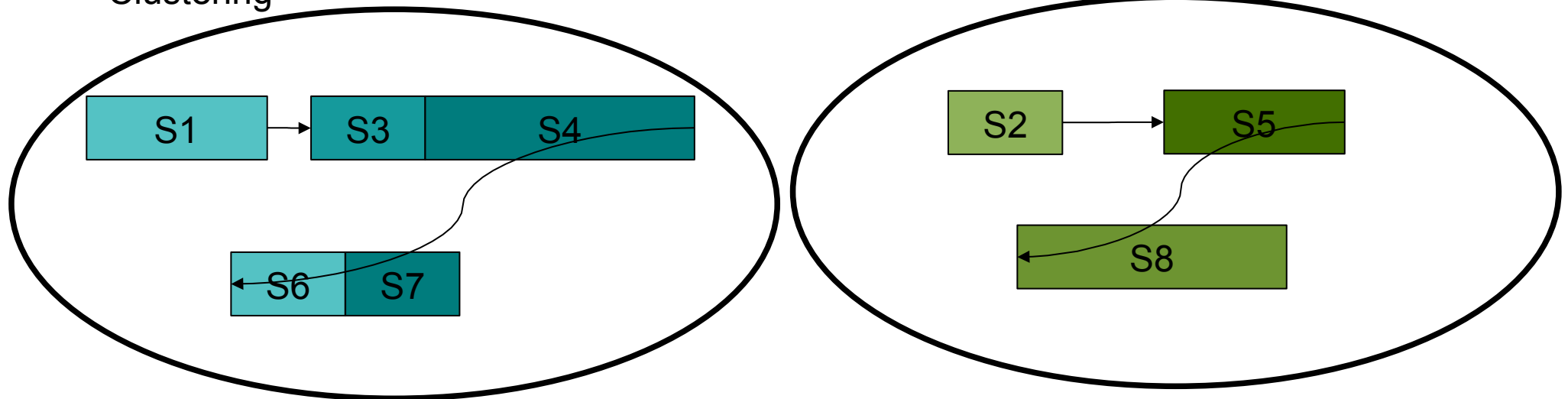
Video scene segmentation



Multimodal Scene Description : Color histograms, speaker diarization, automatic speech recognition



Clustering



Cluster 1 = Story 1

Cluster 2 = Story 2



Overview

Choose an episode...

... the video is loaded...

... and the timeline is updated.

The screenshot shows the StoViz interface. On the left, a panel titled 'Choose an episode in the list' has a dropdown menu set to 'Malcolm episode 6'. Below it, a 'Change timeline presentation' section has three options: 'Scenes segmentation' (selected), 'Man-made stories partitionning', and 'Automatic stories partitionning'. At the bottom of this panel is a 'Play Abstract' button. To the right is a video player showing a scene from the video. Below the video player is a timeline labeled 'Full video scene segmentation' with a play button on the right. The timeline shows a sequence of small video frames, with a red vertical line indicating the current position. A scale at the top of the timeline shows 0, 5, and 20 minutes.

A timeline is a list of scenes of the video, represented by a key-frame. Each grey rectangle is a scene.

Browsing by scene

The screenshot displays the StoViz interface. On the left, a control panel includes a dropdown menu for 'Choose an episode in the list' (set to 'Malcolm episode 6'), a 'Change timeline presentation' section with three radio buttons ('Scenes segmentation' is selected), and a 'Play Abstract' button. A blue callout bubble points to the 'Scenes segmentation' button with the text 'Click this button to update the timeline panel...'. The main area features a video player showing a scene from a kitchen. Below the video is a timeline from 0 to 20 minutes. A 'Full video scene segmentation' bar below the timeline shows a sequence of small keyframe images for each scene. A red vertical line connects the 'Full video scene segmentation' bar to a blue callout bubble at the bottom that reads 'Display a unique timeline, one keyframe per scene'. A play button icon is visible on the right side of the segmentation bar.

related paper : [Toward plot de-interlacing in TV series using scenes clustering](#)

Browsing by story

Manual plot de-interlacing

The screenshot shows the StoViz interface. At the top left, there is a control panel with a dropdown menu for 'Choose an episode in the list' (set to 'Malcolm episode 6') and a 'Change timeline presentation' section with three options: 'Scenes segmentation', 'Man-made stories partitionning' (highlighted), and 'Automatic stories partitionning'. Below these is a 'Play Abstract' button. A video player in the center shows a scene from the TV show. Below the video is a timeline from 0 to 20 minutes. Four stories are listed: 'Story 1: Malcolm in date with Nicky', 'Story 2: Hal and Lois could not make love', 'Story 3: Dewey has a r...', and 'Story 4: Francis against...'. A callout box for Story 2 contains the text: 'Lois has a STD. Hal and her could not make love until the end of her medical treatment. This allows them to make lots of reparations in the house and to take care of everything they have behind.' A red vertical line is positioned at approximately 5 minutes on the timeline. Callout boxes provide instructions: 'Click this button to update the timeline panel...' points to the 'Man-made stories partitionning' button; 'Display one timeline per story.' points to the timeline header; 'A short description of the story is available...' points to the story title; '... as well as a full description if desired.' points to the callout box; and 'The user can browse the video story by story' points to a play button on the right.

StoViz The Stories Visualisation System

Choose an episode in the list
Malcolm episode 6

Change timeline presentation

- Scenes segmentation
- Man-made stories partitionning
- Automatic stories partitionning

Play Abstract

Click this button to update the timeline panel...

Display one timeline per story.

A short description of the story is available...

... as well as a full description if desired.

The user can browse the video story by story

0 5 20 (minutes)

Story 1: Malcolm in date with Nicky

Story 2: Hal and Lois could not make love

Story 3: Dewey has a r...

Story 4: Francis against...

Lois has a STD. Hal and her could not make love until the end of her medical treatment. This allows them to make lots of reparations in the house and to take care of everything they have behind.

related paper : [Toward plot de-interlacing in TV series using scenes clustering](#)

Evaluation

Automatic plot de-interlacing

StoViz The Stories Visualisation System

Choose an episode in the list
Malcolm episode 6

Change timeline presentation

- Scenes segmentation
- Man-made stories partitionning
- Automatic stories partitionning

Play Abstract

Click this button to update the timeline panel...

Plot de-interlacing evaluation (the smaller, the better)

Evaluation result (DER) = 13 %

0 5 10 15 20 (minutes)

Story 1: Malcolm in date with Nicky

Story 2: Hal and Lois could not make love

Story 3: Dewey has a ringer

Story 4: Francis against cowboys

Story 5: incorrect story

Yellow rectangle : Scene belonging to multiple stories but assigned to only one.

Gray rectangle : correct scene position.

Red rectangle : incorrect scene position.

related paper : [Plot de-interlacing in TV series using scenes clustering](#)

Display one timeline per story.

Abstract

The screenshot displays the StoViz interface. At the top left, the logo 'StoViz The Stories Visualisation System' is shown. Below it, a control panel includes a dropdown menu for 'Choose an episode in the list' (set to 'Malcolm episode 7'), a 'Change timeline presentation' section with buttons for 'Scenes segmentation', 'Man-made stories partitionning', and 'Automatic stories partitionning', and a 'Play Abstract' button. A video player shows a scene from the episode. Below the video is a timeline from 0 to 20 minutes. Two tracks are visible: 'Full video scene segmentation' and 'Abstract'. The 'Full video scene segmentation' track shows a sequence of small scene thumbnails. The 'Abstract' track shows a single representative scene thumbnail for each story segment. A blue callout box points to the 'Play Abstract' button.

Choose an episode in the list
Malcolm episode 7

Change timeline presentation
Scenes segmentation
Man-made stories partitionning
Automatic stories partitionning
Play Abstract

One click to play the video abstract.

0 5 10 15 20 (minutes)

Full video scene segmentation

Abstract

Abstract is generated by selecting one representative scene per story.
The representative scene of a story is the one having
the minimum mean distance (calculated from descriptors) with all other scenes.