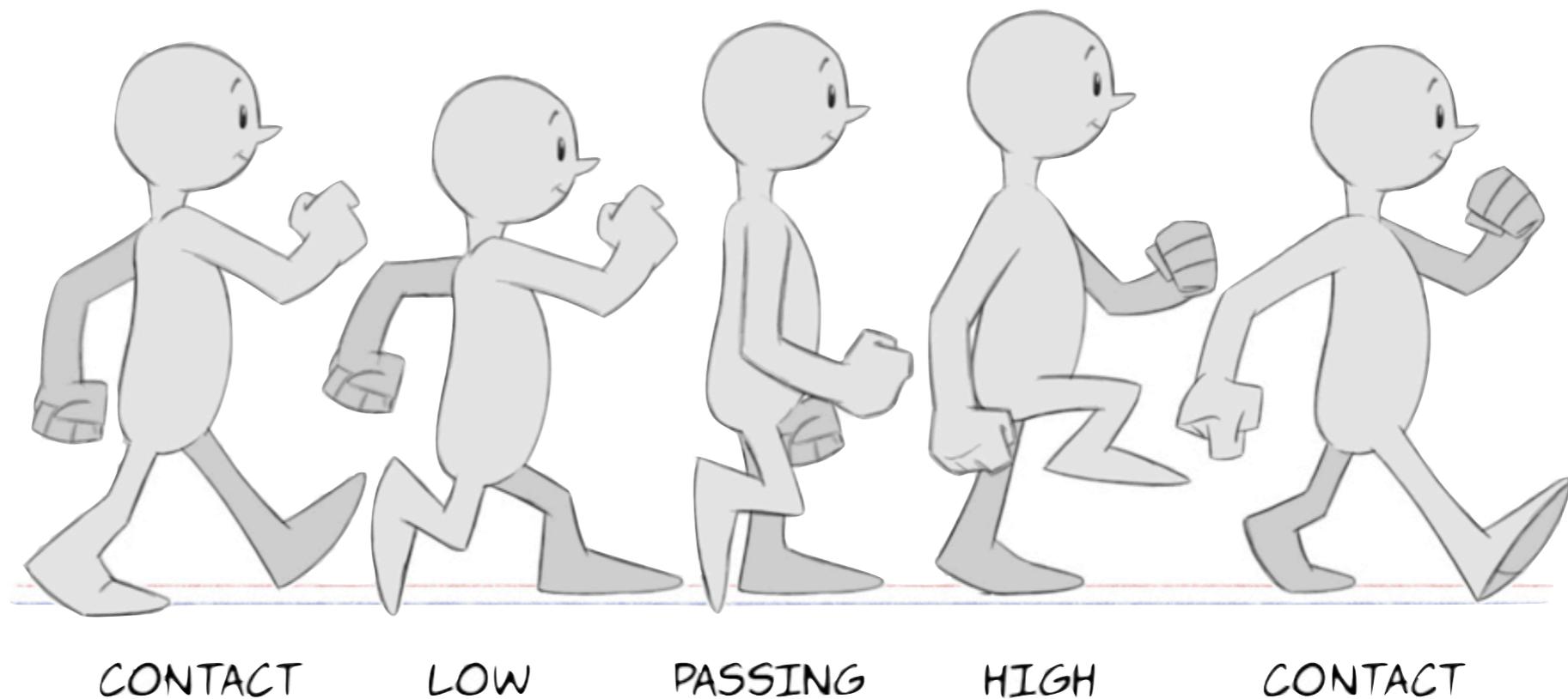


Les animations dans les interfaces

Sylvain Malacria

<http://www.malacria.com/>

<mailto:sylvain.malacria@inria.fr>



Diapositives inspirées de F. Chevalier

Récapitulatif

Dans les cours précédents, vous avez

- ▶ Appris ce qu'était la visualisation d'information
- ▶ Appris quels étaient les avantages de l'infovis
- ▶ Vu et critiqué des exemples historiques et récents
- ▶ Appris qu'on ne peut pas toujours faire confiance à ce que l'on voit

- ▶ Appris quel est le pipeline pour transformer des données en représentation visuelle
- ▶ Appris à connaître et caractériser vos données
- ▶ Appris les composantes basiques de la visualisation

- ▶ Commencé à créer votre propre visualisation

Récapitulatif

Cette semaine, vous allez

- ▶ Apprendre à quoi peuvent servir les animations
- ▶ Apprendre différents types de transitions
- ▶ Apprendre les difficultés d'étudier et concevoir les animations
- ▶ Apprendre des principes de conception

- ▶ Voir différents exemples d'utilisation d'animations

- ▶ Continuer à créer votre propre visualisation

Quand les interfaces s'animent ...

Les animations

... peuvent être très ennuyeuses

The screenshot shows a web browser window with the address bar displaying www.angelfire.com/super/badwebs/. The page has a yellow header with the title **The World's Worst Website** in red, italicized font. The main content area has a brown background with a pattern of small white dots. It features several text blocks and images illustrating common web design mistakes:

- Left sidebar (red background, green text):** Discusses the "Gratuitous use of frames" as a common mistake, notes that many browsers do not support frames, and provides instructions on using the `<base target="_blank">` tag between `<head>` and `</head>` to open links in a new window. It also includes links to "The 'I Hate Frames' Frames Page", "Another I Hate Frames Page", and "The International I Hate Frames Club".
- Main content area:**
 - Top:** "Welcome To My Website!" in red, italicized font, followed by "Welcome to the World's Worst Website!" in yellow, bold font.
 - Middle:** A teal box with the text: "Where am I and where are the links to other pages? An easy to use navigation structure is essential to any well designed website! Important information should never be more than 2 clicks away."
 - Bottom:** A white box with the text: "Keep your backgrounds simple. White or light colors usually work best. Your background should not compete with the content of the page for the users attention. If you would like to use a background picture, select a picture that uses muted colors or format your picture as a watermark. Select text colors which will contrast well with the background picture."
- Images:**
 - A small image of an eye, used to illustrate poor contrast between background and text.
 - A cartoon image of a cowboy riding a horse, used to illustrate distracting animations.
 - A large, colorful, abstract image of a volcano or explosion, used to illustrate excessive, large, flashing, and obnoxious advertisements.

<http://www.angelfire.com/super/badwebs/>

Les animations

... peuvent être très ennuyeuses

The screenshot shows a web browser window with the address bar displaying www.angelfire.com/super/badwebs/. The page has a yellow header with the title **The World's Worst Website** in red, italicized font. The main content area has a brown background with a pattern of small white dots. It features several text blocks and images:

- Left sidebar (red background, green text):**
 - Gratuitous use of frames is a common mistake of web designers.
 - Many browsers do not support frames. They disrupt the flow of the website and can be difficult to anticipate where a page may appear when a link is clicked.
 - If you must use frames, use the tag `<base target="_blank">` between `<head>` and `</head>` to assure links will open in a new window.
 - Check out these links to websites whose opinions about frames is self evident:
 - [The "I Hate Frames" Frames Page](#)
 - Another [I Hate Frames Page](#)
 - [The International I Hate Frames Club](#)
- Main content area:**
 - Red text: **Welcome To My Website!**
 - Yellow text: **Welcome to the World's Worst Website!**
 - White text: **This web was designed to graphically demonstrate the most common mistakes made by new Web Page designers.**
 - Teal box with white text: *Where am I and where are the links to other pages?*
An easy to use navigation structure is essential to any well designed website! Important information should never be more than 2 clicks away.
 - Image of an eye with text: *As you can see, this text is difficult to read. There needs to more contrast between the background color and the text color. [Here's another example](#) of a poor choice of a background/ text color and size.*
 - White box with black text: **Keep your backgrounds simple. White or light colors usually work best. Your background should not compete with the content of the page for the users attention. If you would like to use a background picture, select a picture that uses muted colors or format your picture as a watermark. Select text colors which will contrast well with the background picture.**
 - Yellow box with text: *Constantly running animations can be distracting when used excessively. There should be no more than one animated object in your view at any time. Also in this category are excessive, large, flashing & obnoxious advertisements.*
 - Image of a cowboy on a horse.
 - Image of a volcano erupting.

<http://www.angelfire.com/super/badwebs/>

Les animations

... mais peuvent-être également très utiles

Item 09342

Item 01432

Item 92134

Item 92341

Item 19965

Item 15772

Item 12164

Les animations

... mais peuvent-être également très utiles

Item 09342

Item 02164

Item 01432

Item 92134

Item 92341

Item 19965

Item 15772

Les animations

... mais peuvent-être également très utiles

Item 09342

Item 01432

Item 92134

Item 92341

Item 19965

Item 15772

Item 12164

Les animations

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Item 09342

Item 02164

Item 01432

Item 92134

Item 92341

Item 19965

Item 15772

Les animations

... mais peuvent-être également très utiles



Durée: 300ms

1 insertion + Ré-ordonnancement

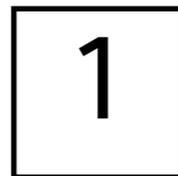
1 suppression

Transitions animées

Transitions animées

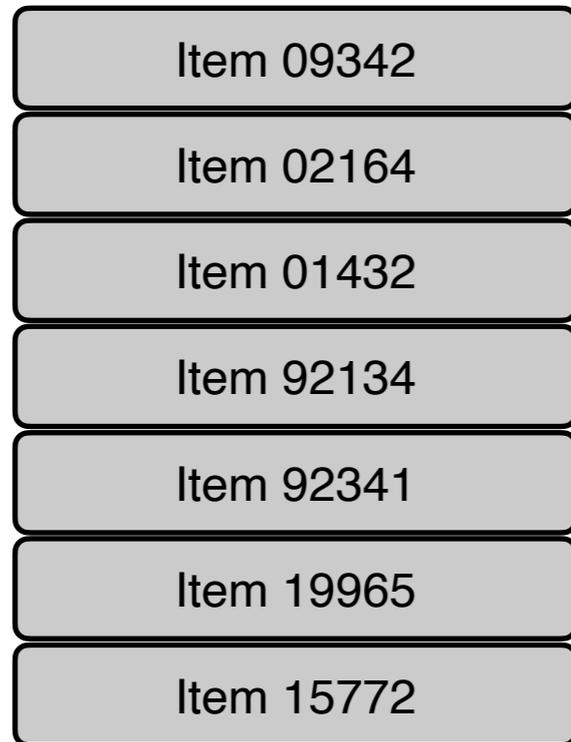
1

Transitions animées

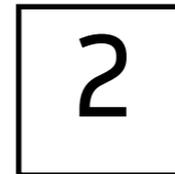
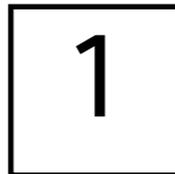


État 1

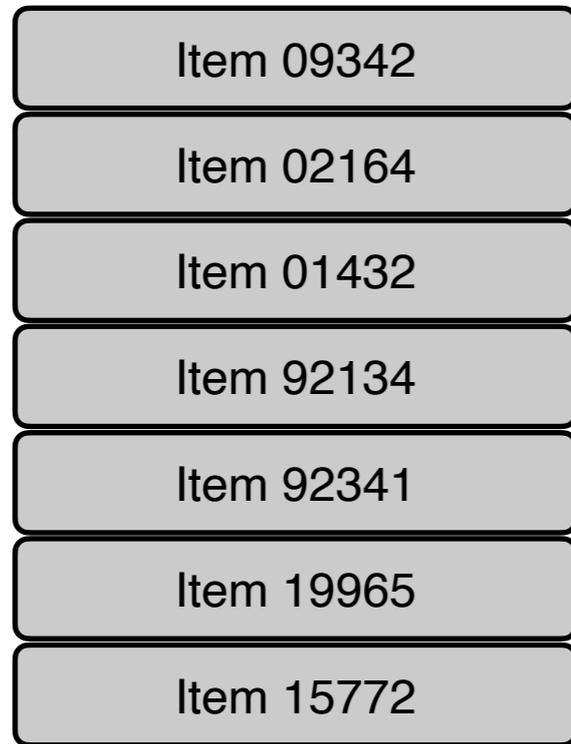
Transitions animées



État 1



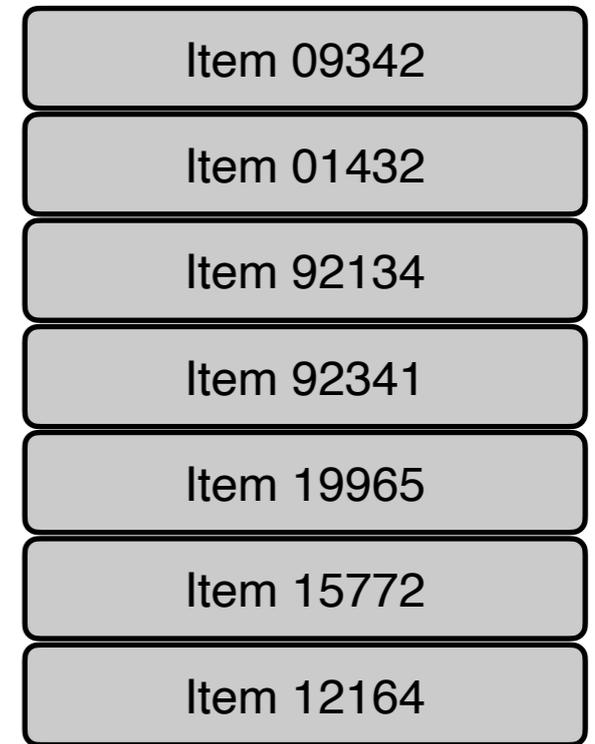
Transitions animées



État 1

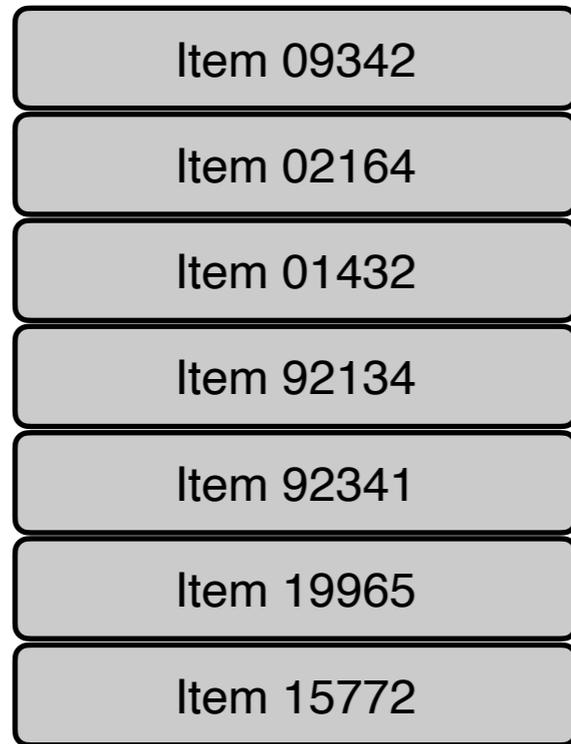
1

2

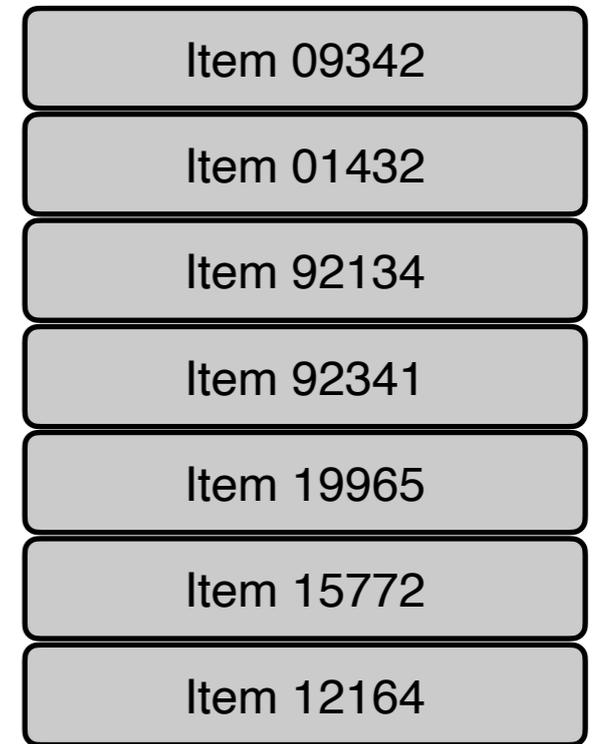
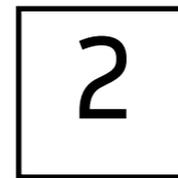
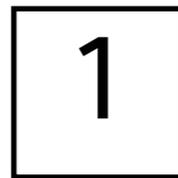


État 2

Transitions animées

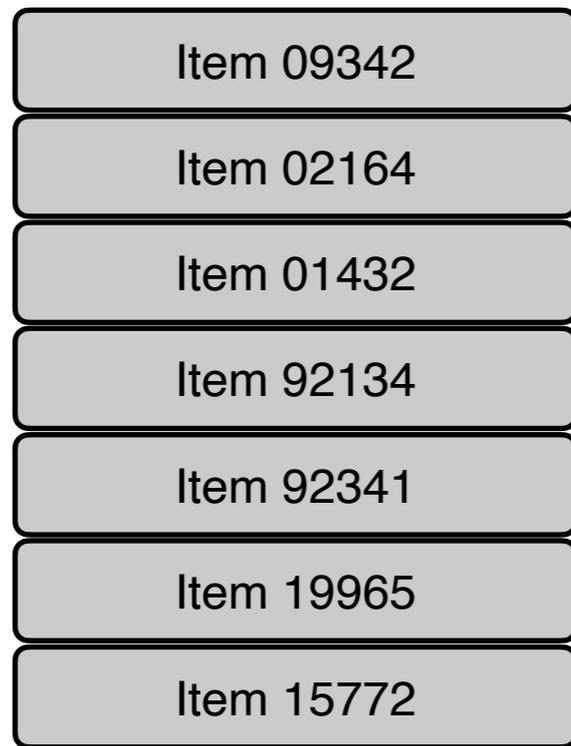


État 1

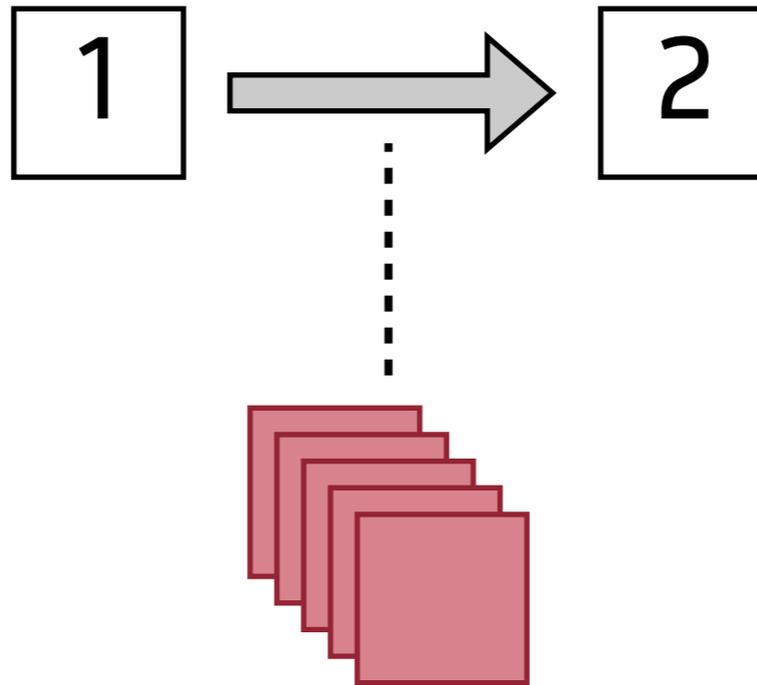


État 2

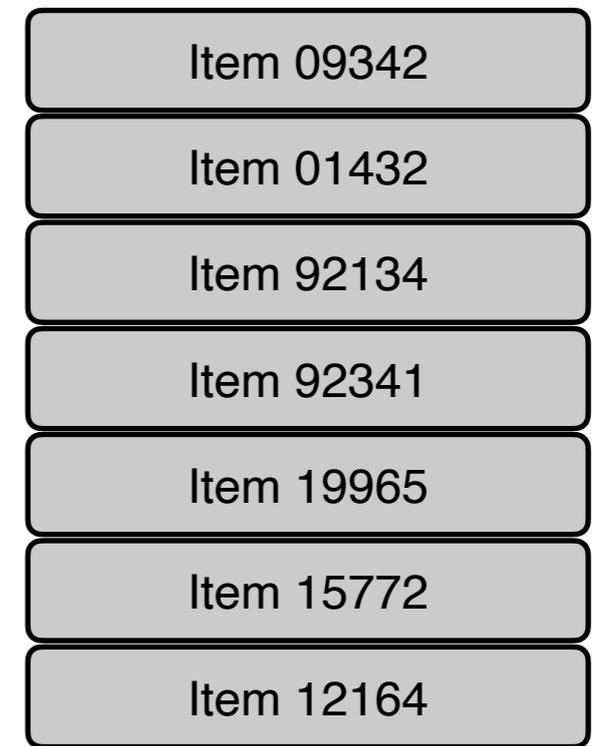
Transitions animées



État 1



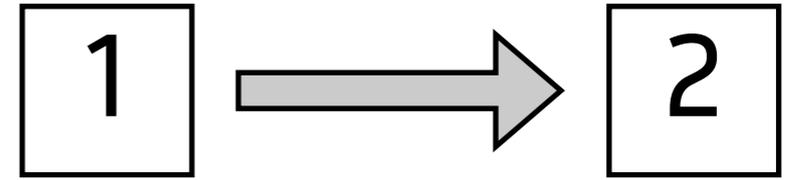
Images intermédiaires



État 2

Les animations

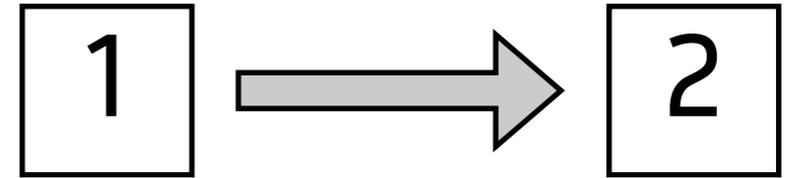
Transition abrupte



- Item 09342
- Item 01432
- Item 92134
- Item 92341
- Item 19965
- Item 15772
- Item 12164

Les animations

Transition abrupte

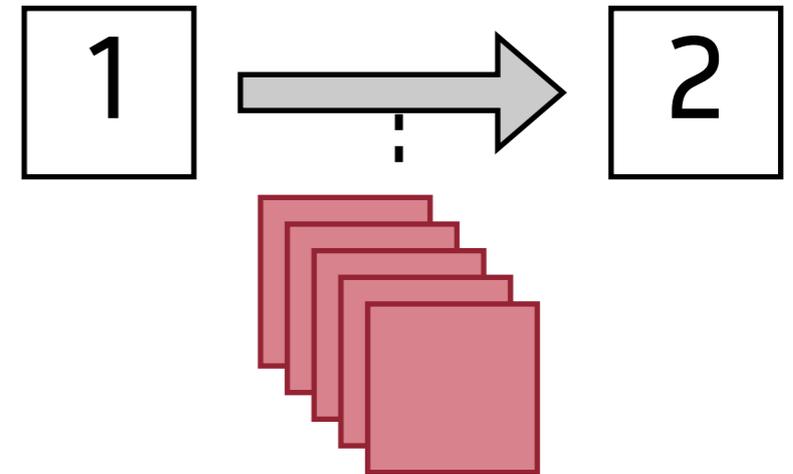


- Item 09342
- Item 02164
- Item 01432
- Item 92134
- Item 92341
- Item 19965
- Item 15772

Les animations

Transition animée

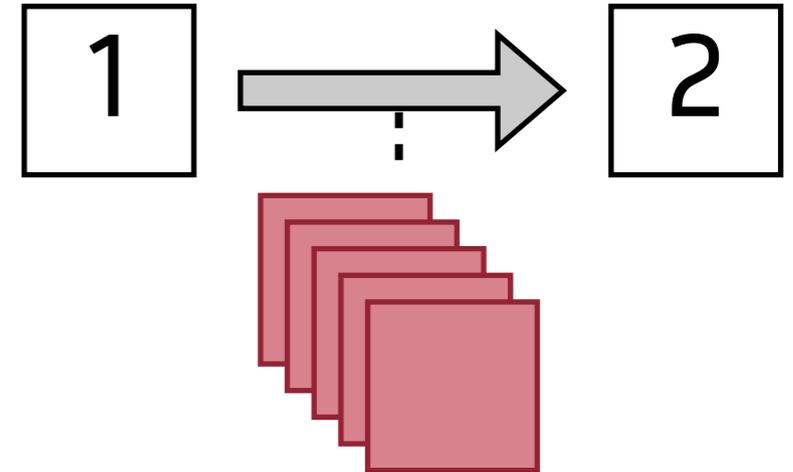
- Item 09342
- Item 01432
- Item 92134
- Item 92341
- Item 19965
- Item 15772
- Item 12164



Les animations

Transition animée

- Item 09342
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- Item 01432
- Item 92134
- Item 92341
- Item 19965
- Item 15772



Les animations

Transition animée



Item 09342

Item 02164

Item 01432

Item 92134

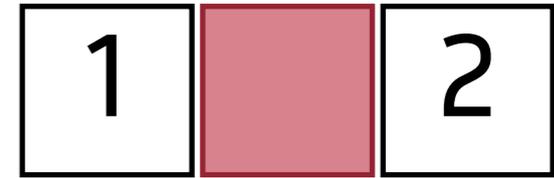
Item 92341

Item 19965

Item 15772

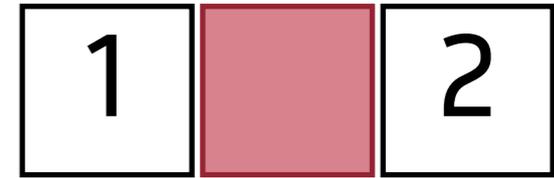
Les animations

Rupture



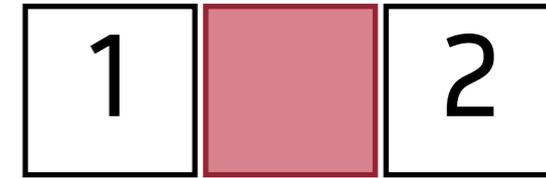
Les animations

Rupture



Les animations

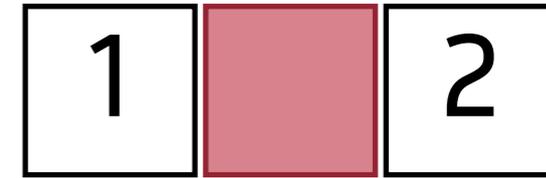
Rupture



<http://learnforeverlearn.com/changeblindness/>

Les animations

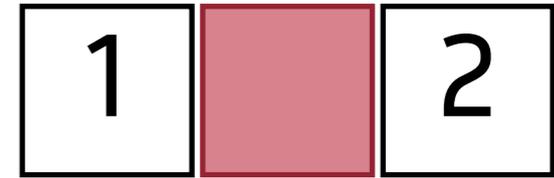
Rupture



<http://learnforeverlearn.com/changeblindness/>

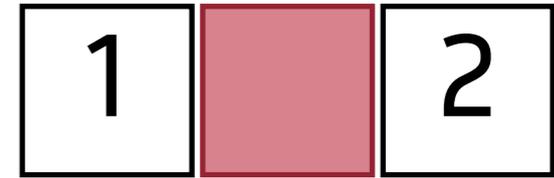
Les animations

Rupture



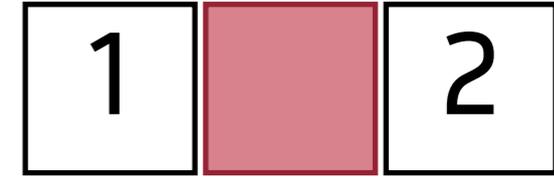
Les animations

Rupture



Les animations

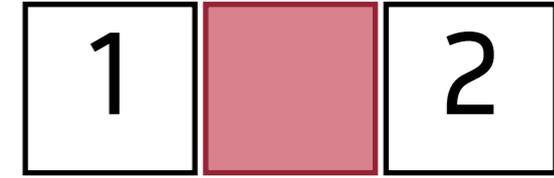
Rupture



<http://learnforeverlearn.com/changeblindness/>

Les animations

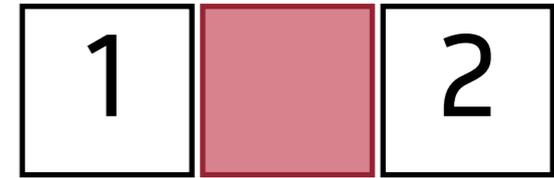
Rupture



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Les animations

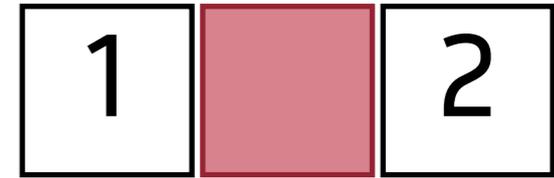
Rupture



<http://learnforeverlearn.com/changeblindness/>

Les animations

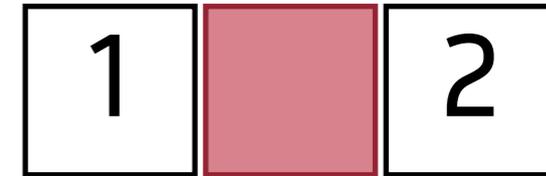
Rupture



<http://learnforeverlearn.com/changeblindness/>

Les animations

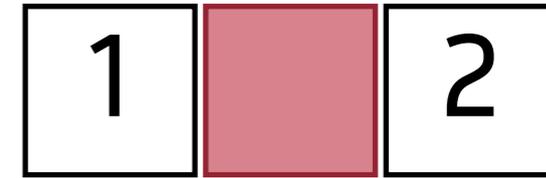
Rupture



<http://learnforeverlearn.com/changeblindness/>

Les animations

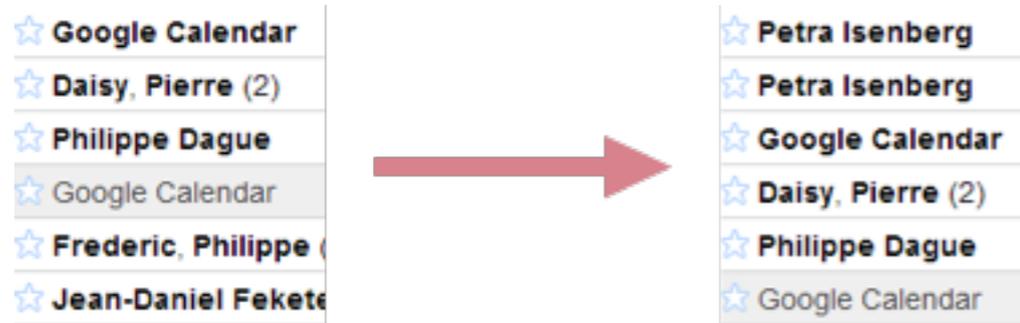
Rupture



<http://learnforeverlearn.com/changeblindness/>

Animations

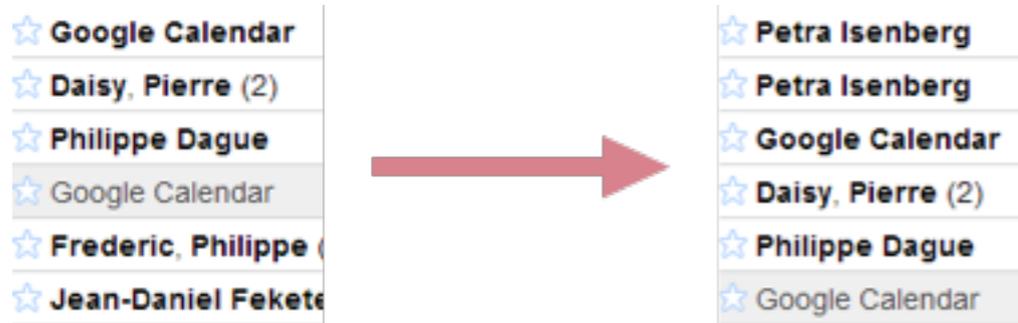
Les types de transitions



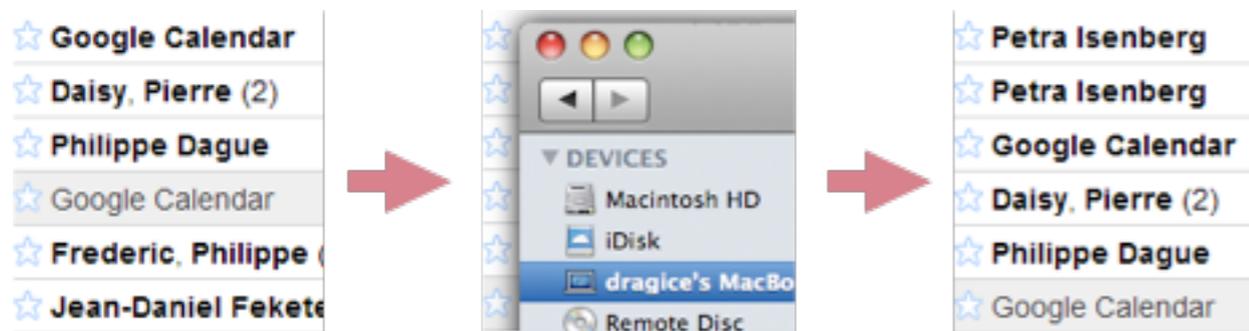
Transition abrupte

Animations

Les types de transitions



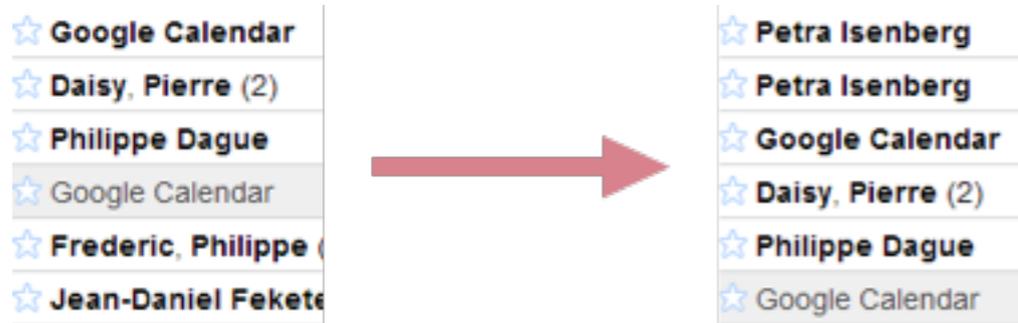
Transition abrupte



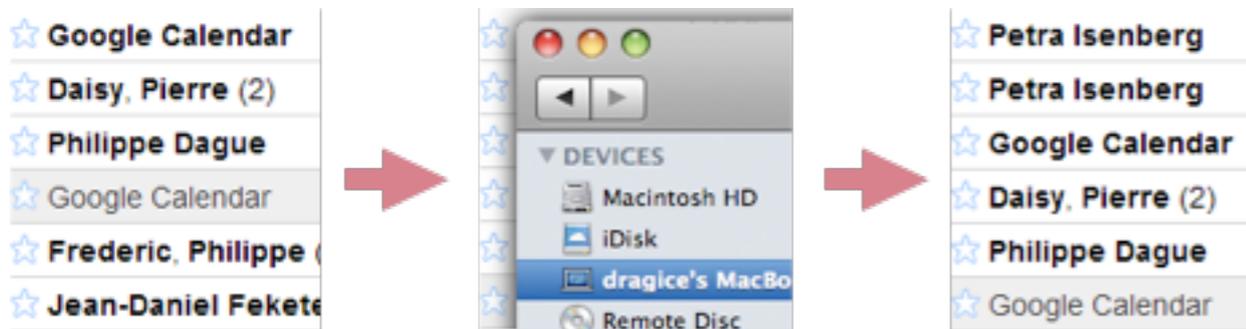
Transition cachée

Animations

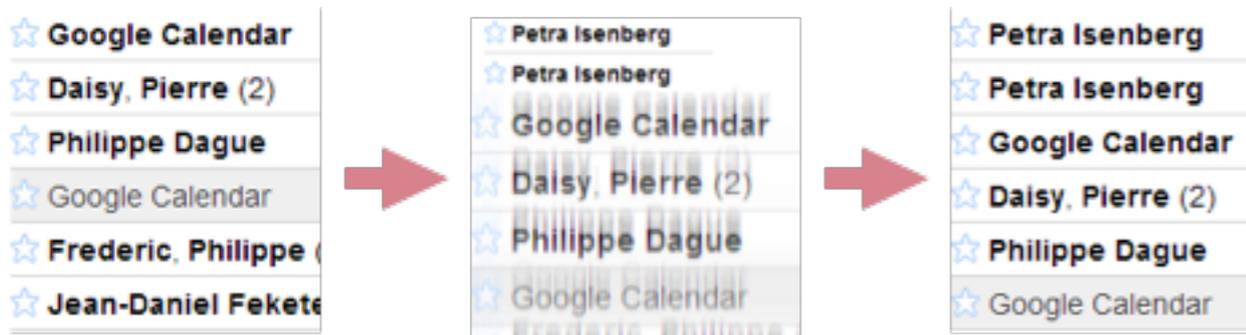
Les types de transitions



Transition abrupte



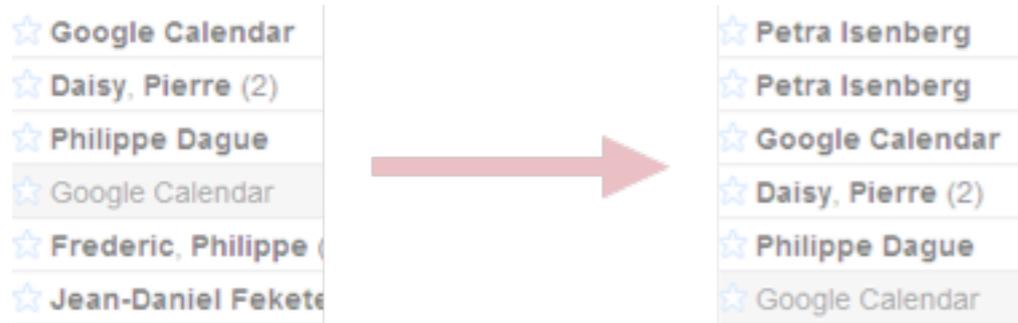
Transition cachée



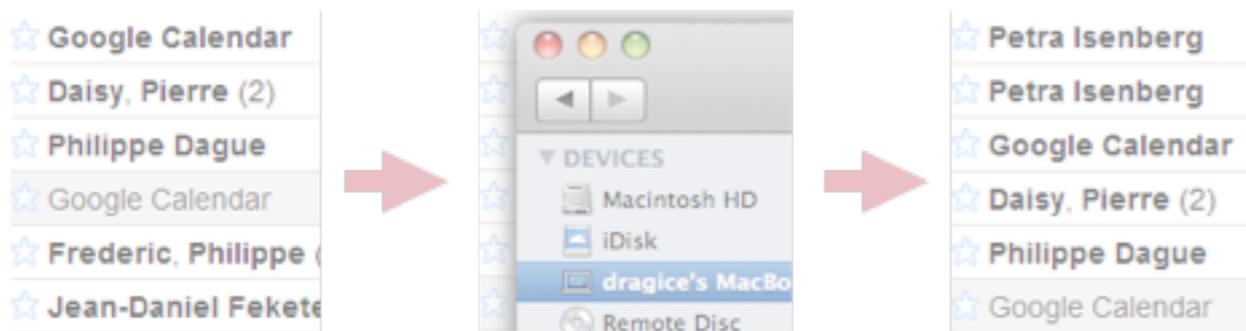
Transition animée

Animations

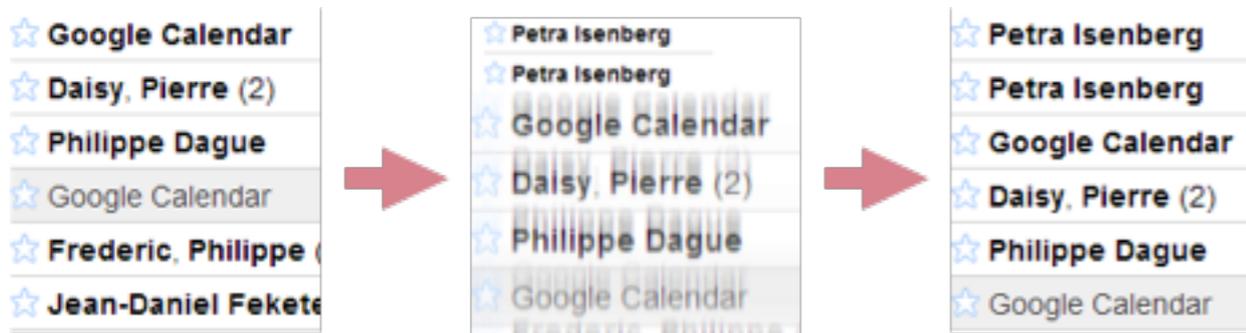
Les types de transitions



Transition abrupte



Transition cachée



Transition animée

Les transitions animées

Les transitions animées

Questions de recherche

Sont-elles utiles ?

- ▶ Expériences contrôlées

Comment les réaliser ?

- ▶ Implicite Vs. Explicite

Comment les concevoir ?

- ▶ Règles de conception

Comment mieux les exploiter ?

- ▶ Nouveaux usages et applications

Les transitions animées

Questions de recherche

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Sont-elles utiles ?

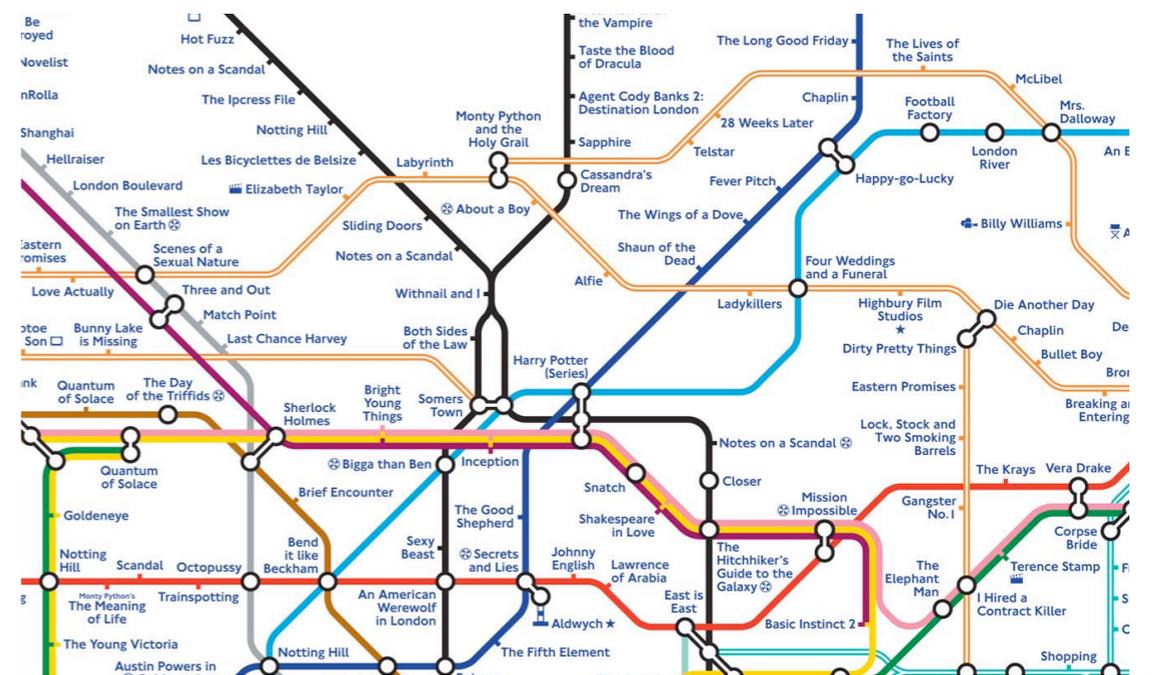
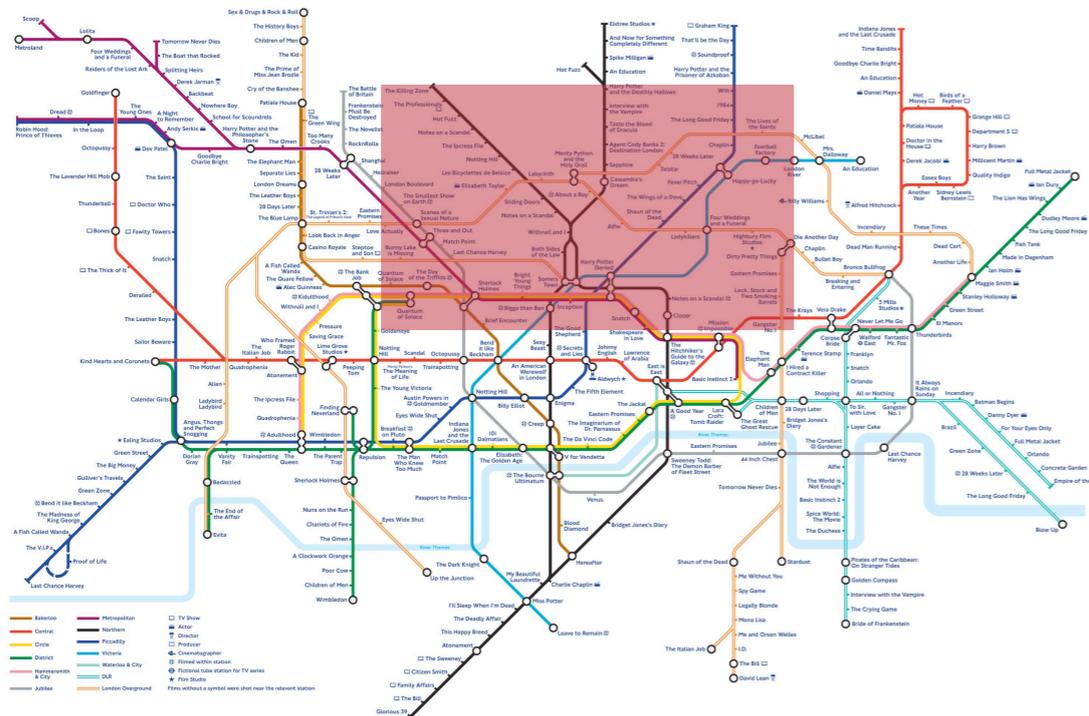
The supporting power being estimated at 2500 pounds, and the united weights of the party amounting only to about 1200, there was left a surplus of 1300, of which again 1200 was exhausted by ballast, arranged in bags of different sizes, with their respective weights marked upon them -- by cordage, barometers, telescopes, barrels containing provision for a fortnight, water-casks, cloaks, carpet-bags, and various other indispensable matters, including a coffee-warmer, contrived for warming coffee by means of slack-lime, so as to dispense altogether with fire, if it should be judged prudent to do so. All these articles, with the exception of the ballast, and a few trifles, were suspended from the hoop overhead. The car is much smaller and lighter, in proportion, than the one appended to the model. It is formed of a light wicker, and is wonderfully strong for so frail looking a machine. Its rim is about 4 feet deep. The rudder is also very much larger, in proportion, than that of the model; and the screw is considerably smaller. The balloon is furnished besides with a grapnel, and a guide-rope, which latter is of the most indispensable importance. A few words, in explanation, will here be necessary for such of our readers as are not conversant with the details of aerostation.

As soon as the balloon quits the earth, it is subjected to the influence of many circumstances tending to create a difference in its weight; augmenting or diminishing its ascending power. For example, there may be a deposition of dew upon the silk, to the extent, even, of several hundred pounds; ballast has

[Klein & Bederson, 2005]

Les transitions animées

Sont-elles utiles ?

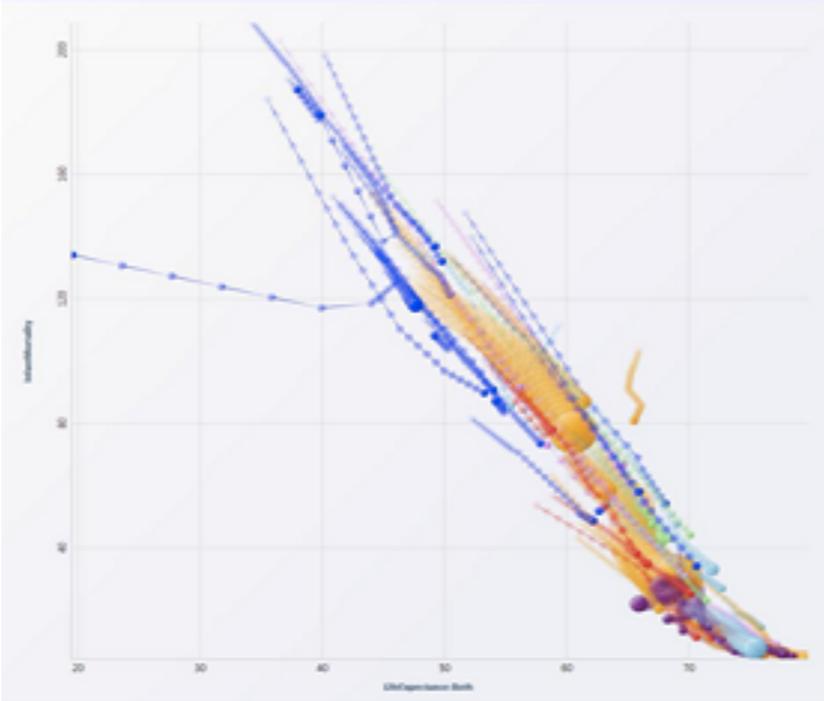


[Shanmugasundaram & Irani, 2008]

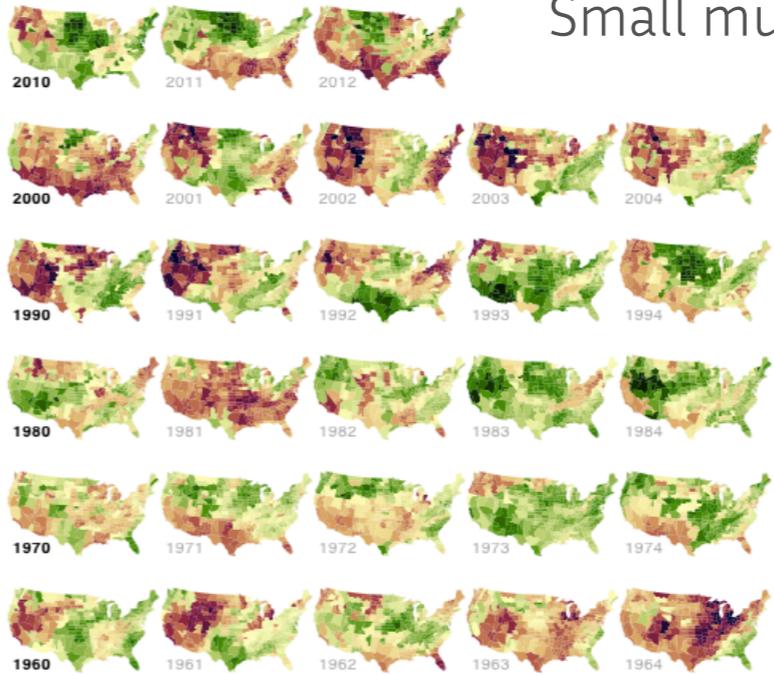
Les transitions animées

Difficiles à évaluer

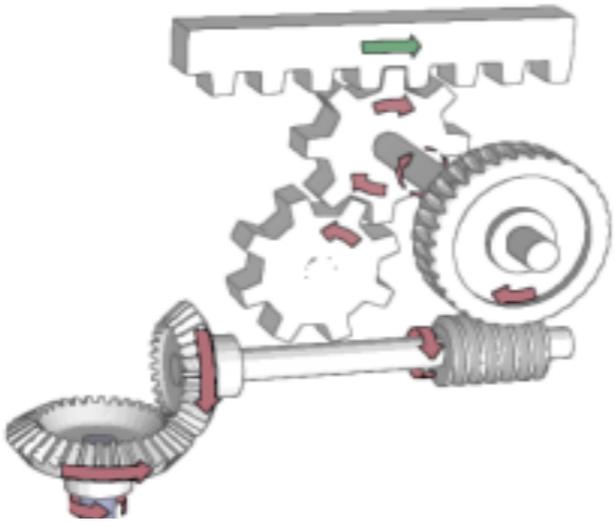
Traces



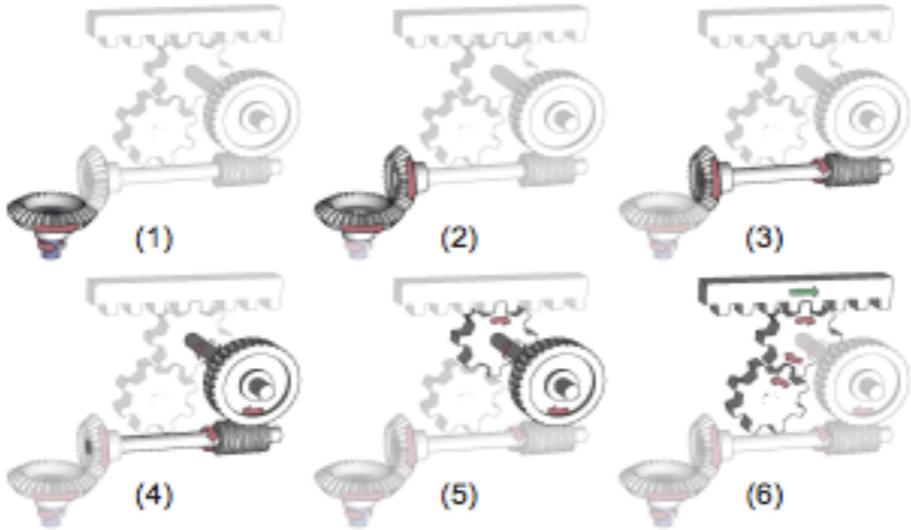
Small multiples



Arrows

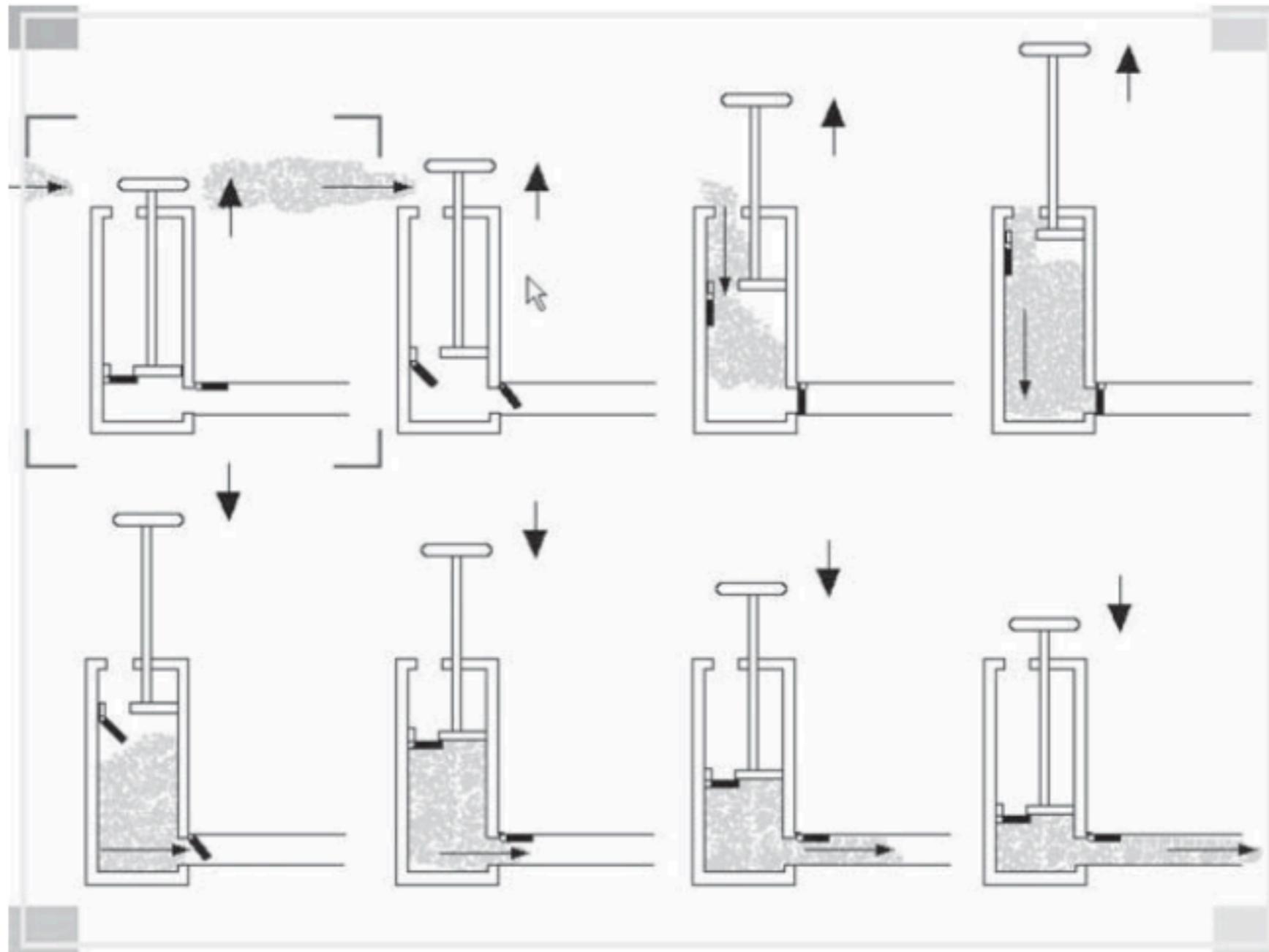


Causal chain



Les transitions animées

Difficiles à évaluer



[Kim et al., 2007]

Les transitions animées

Questions de recherche

Sont-elles utiles ?

- ▶ Expériences contrôlées

Comment les réaliser ?

- ▶ Implicite Vs. Explicite

Comment les concevoir ?

- ▶ Règles de conception

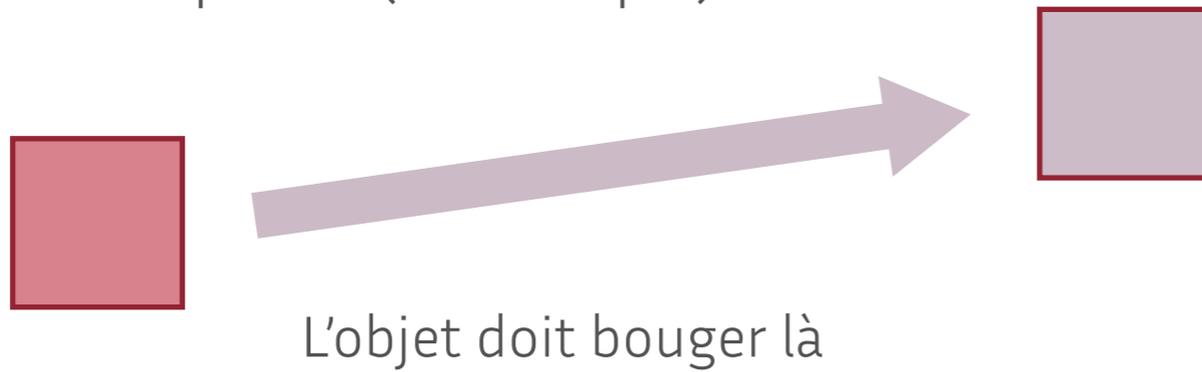
Comment mieux les exploiter ?

- ▶ Nouveaux usages et applications

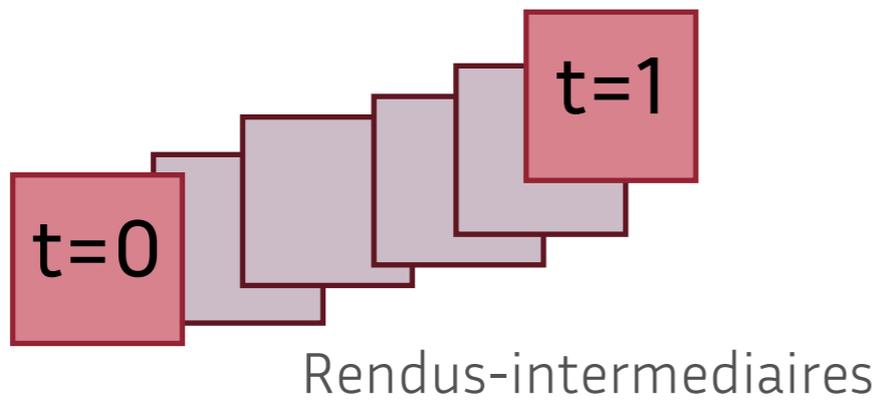
Les transitions animées

Comment les réaliser ?

Approche explicite (mécanique)



Approche implicite (paramétrique)



Les transitions animées

Questions de recherche

Sont-elles utiles ?

- ▶ Expériences contrôlées

Comment les réaliser ?

- ▶ Implicite Vs. Explicite

Comment les concevoir ?

- ▶ Règles de conception

Comment mieux les exploiter ?

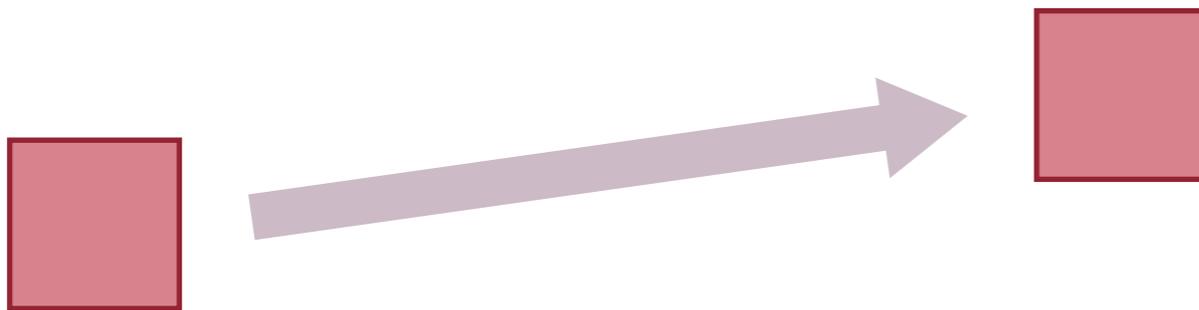
- ▶ Nouveaux usages et applications

Les transitions animées

Questions de conception

Quelle est la bonne durée ?

Quelle est la bonne transition ?

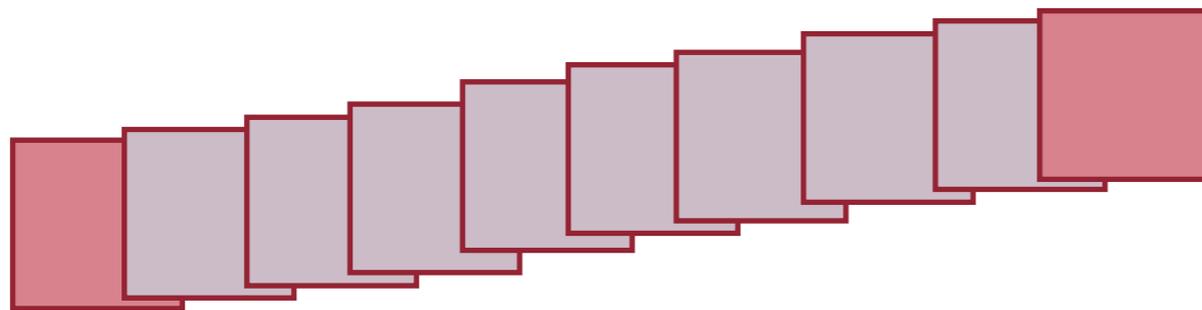


Les transitions animées

Questions de conception

Quelle est la bonne durée ?

Quelle est la bonne transition ?

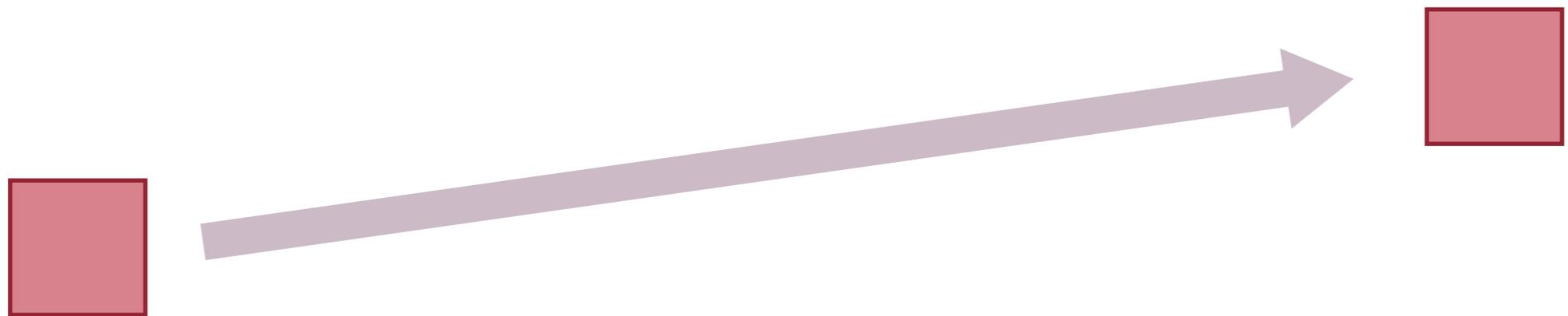


Les transitions animées

Questions de conception

Quelle est la bonne durée ?

Quelle est la bonne transition ?

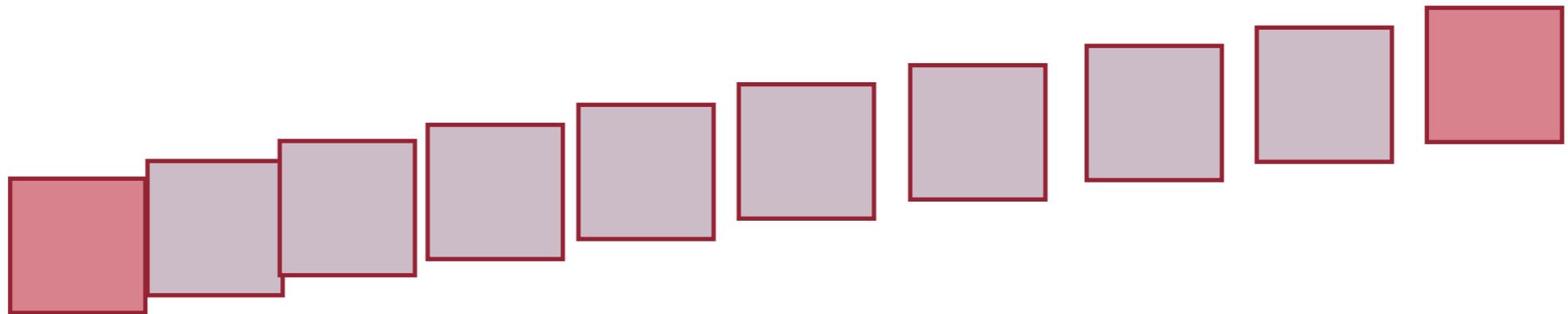


Les transitions animées

Questions de conception

Quelle est la bonne durée ?

Quelle est la bonne transition ?

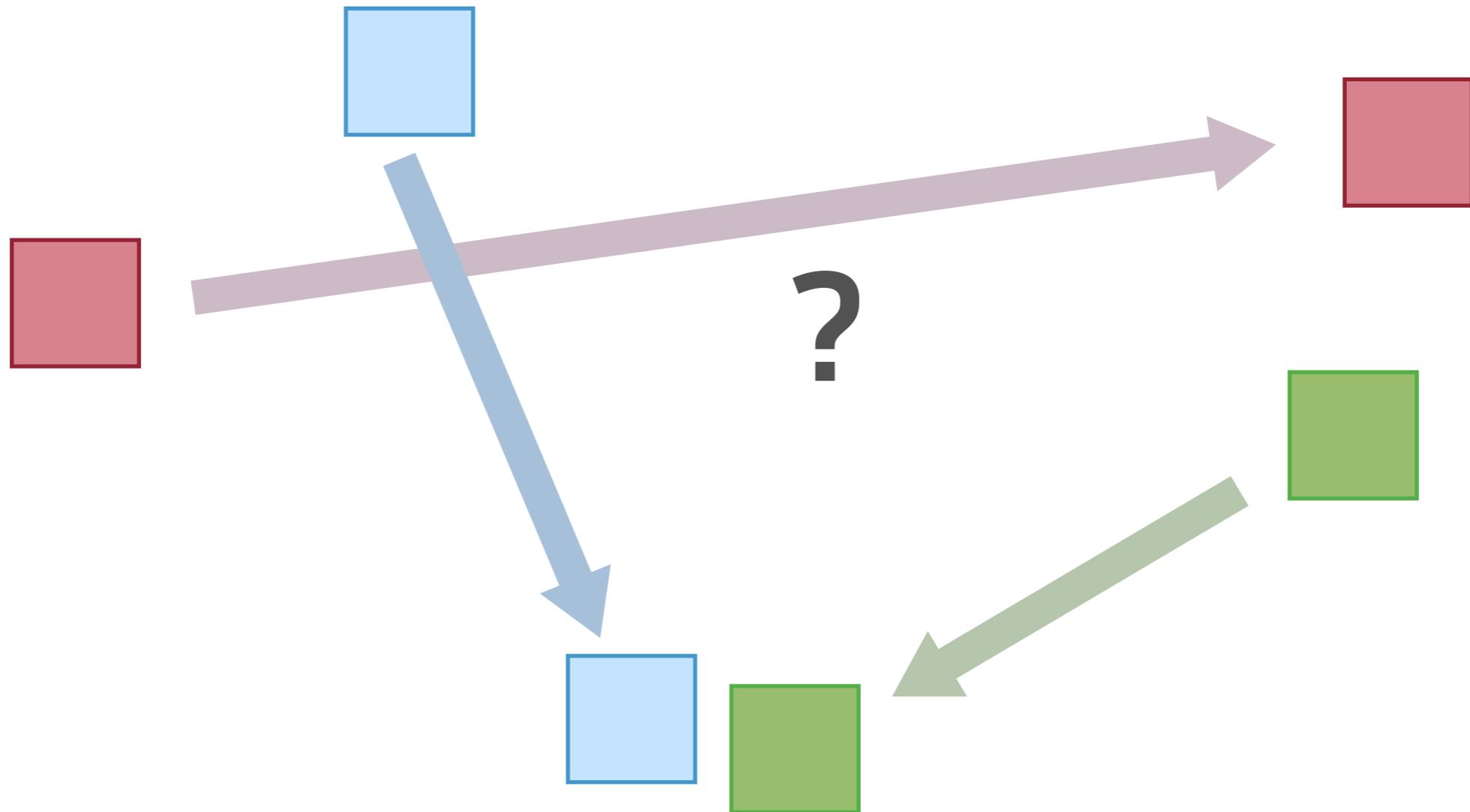


Les transitions animées

Questions de conception

Quelle est la bonne durée ?

Quelle est la bonne transition ?

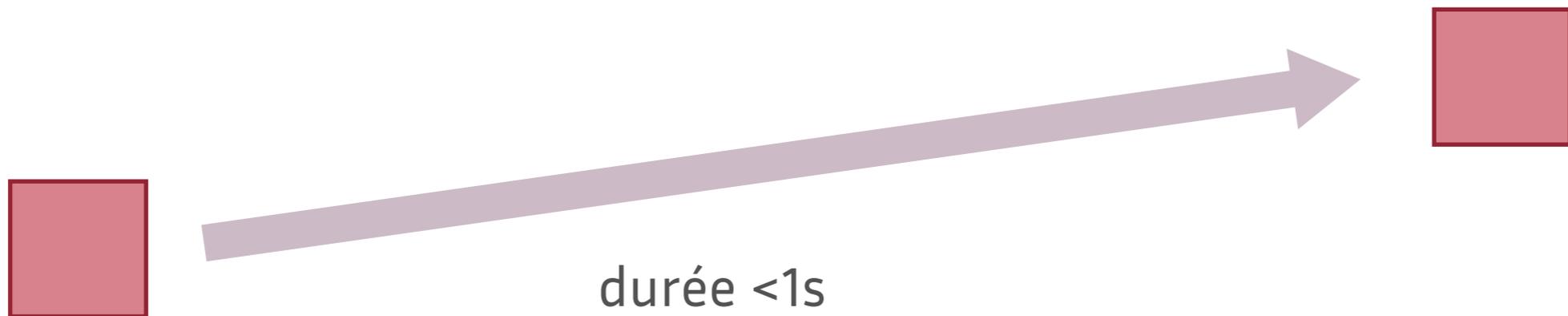


Les transitions animées

Questions de conception

Quelle est la bonne durée ?

Quelle est la bonne transition ?

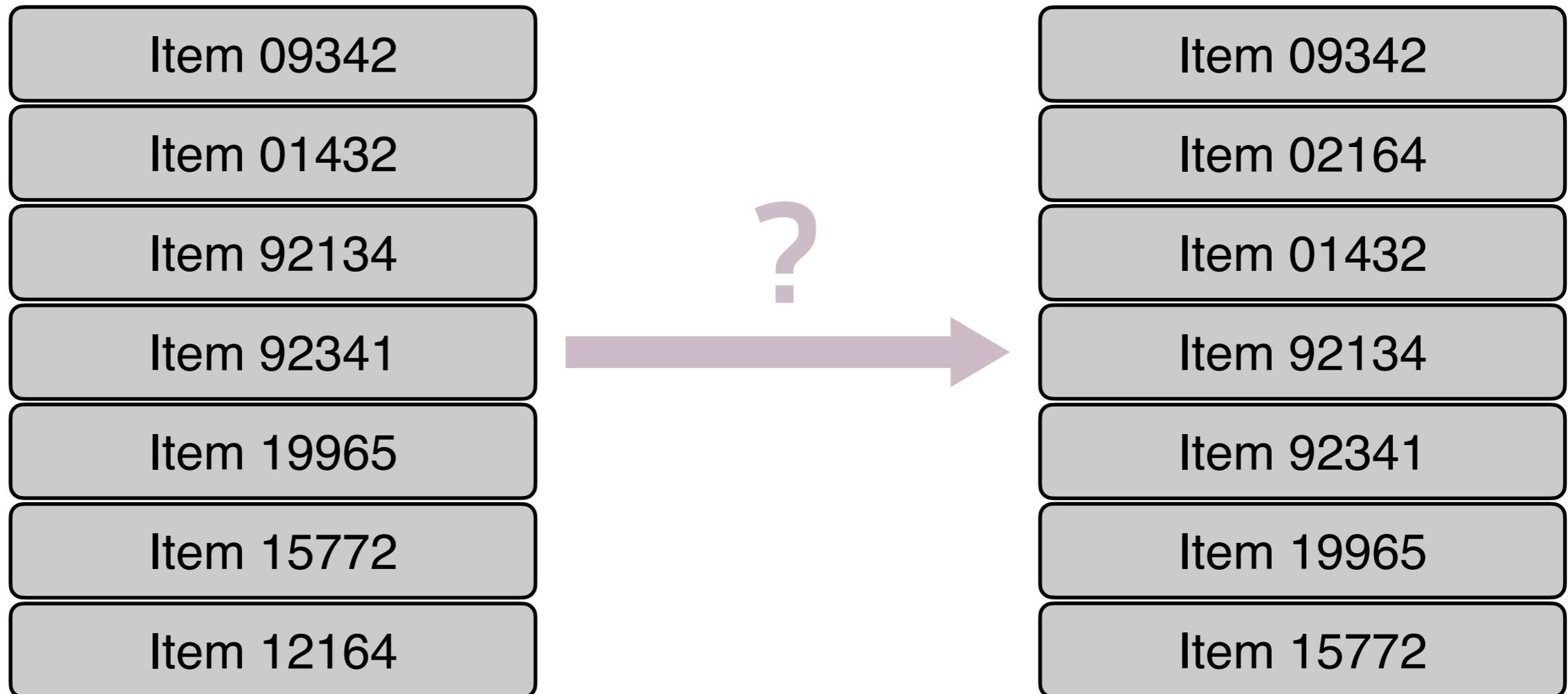


Les transitions animées

Questions de conception

Quelle est la bonne durée ? (moins de 1s)

Quelle est la bonne transition ?

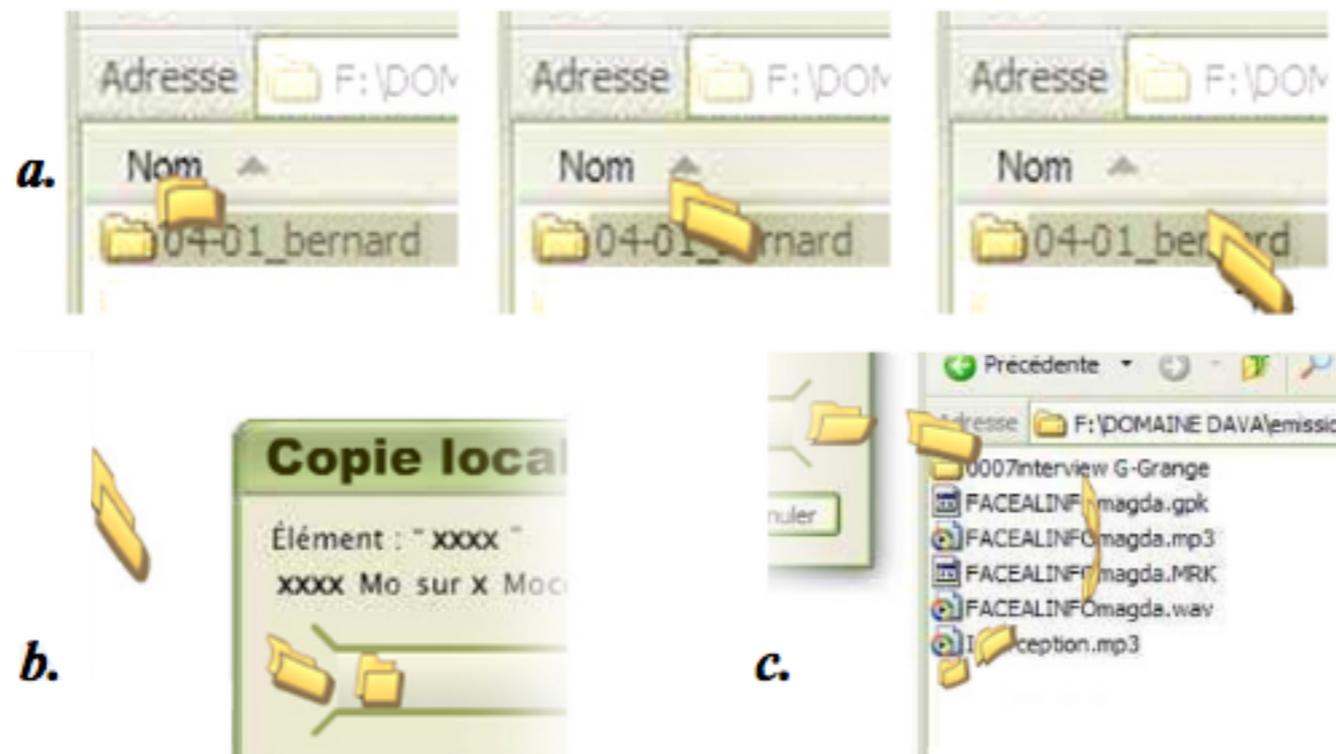


Les transitions animées

Véhiculer la bonne information

Les transitions visuelles différenciées

Exemple : un téléchargement



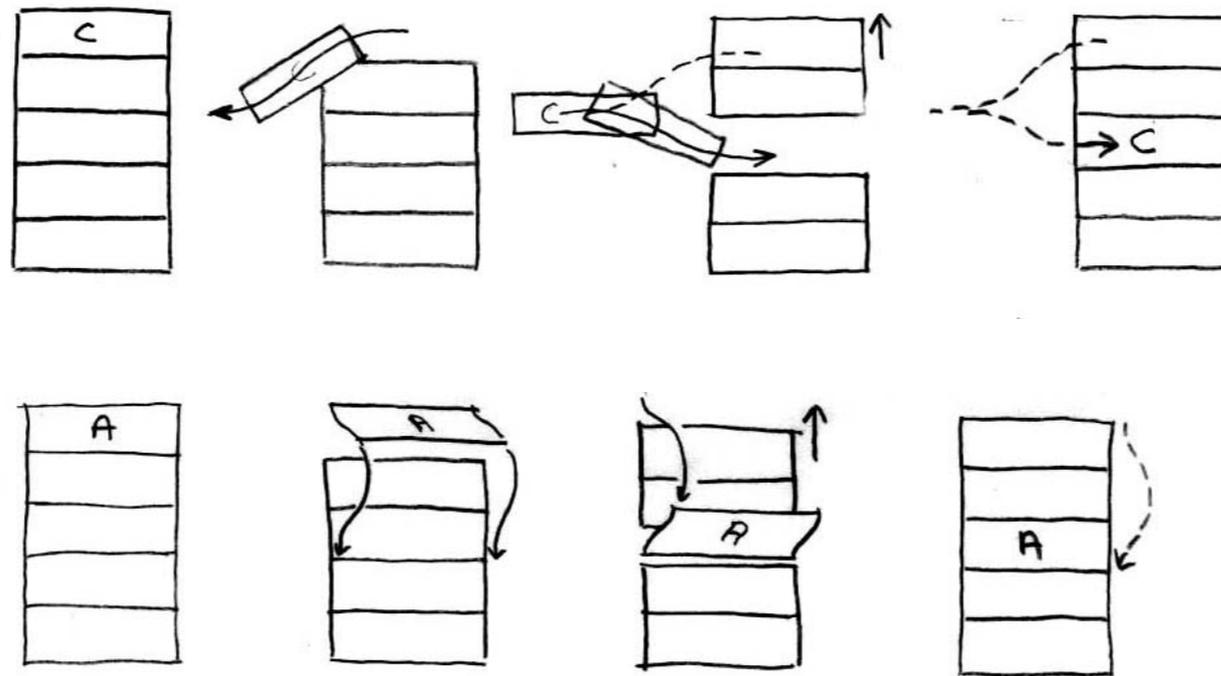
[Schlinger et al., IHM 2006]

Les transitions animées

Véhiculer la bonne information

Les transitions visuelles différenciées

Exemple : les listes typées



[Schlinger et al., IHM 2006]

Les transitions animées

Règles de conception

Congruence

L'information véhiculée par l'animation doit être perçue avec précision

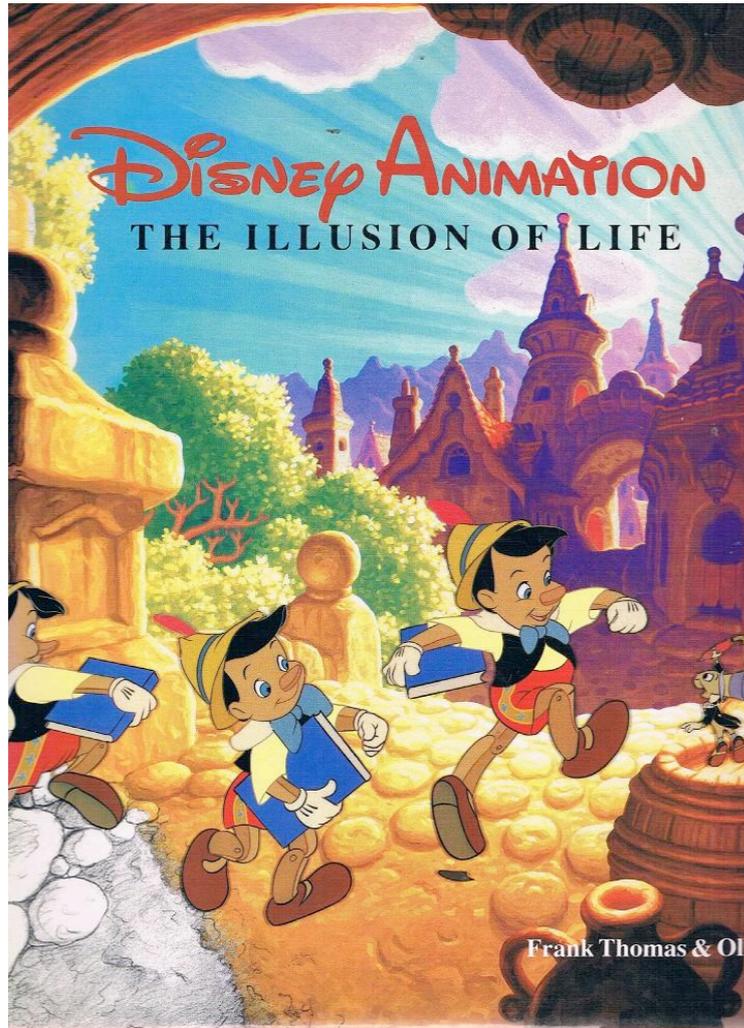
Appréhension

L'animation doit être prédictible et compréhensible

[Tversky et al., IHM 2006]

Les transitions animées

Principes de conception

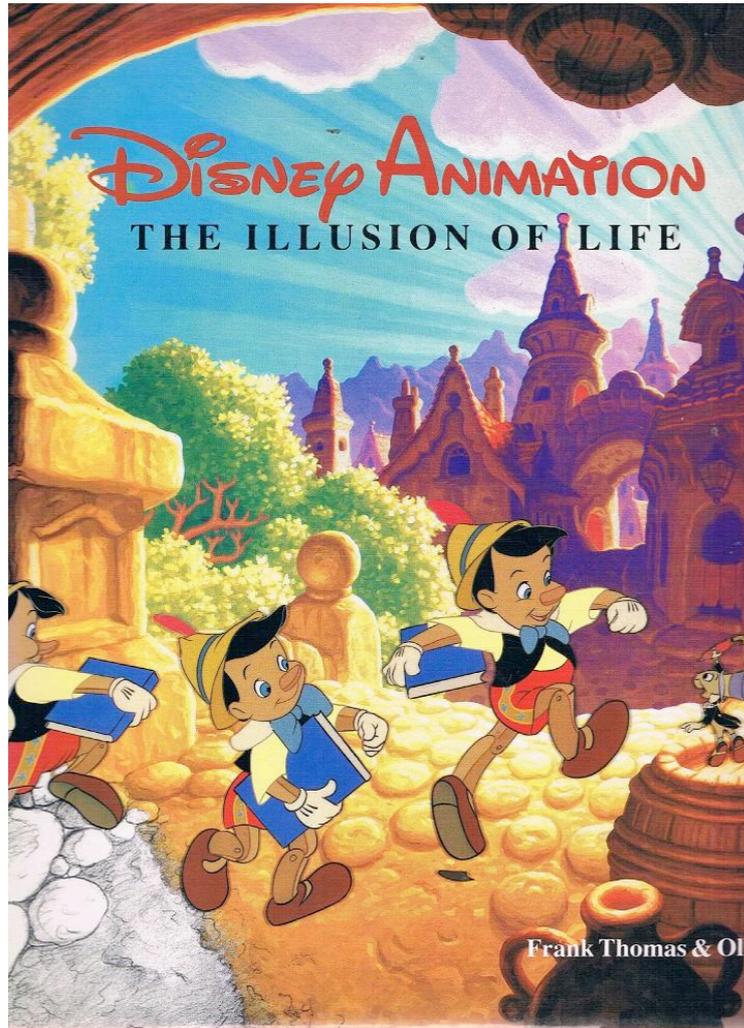


[Thomas & Johnston 1981]

[Lasseter, SIGGRAPH'87]

Les transitions animées

Principes de conception



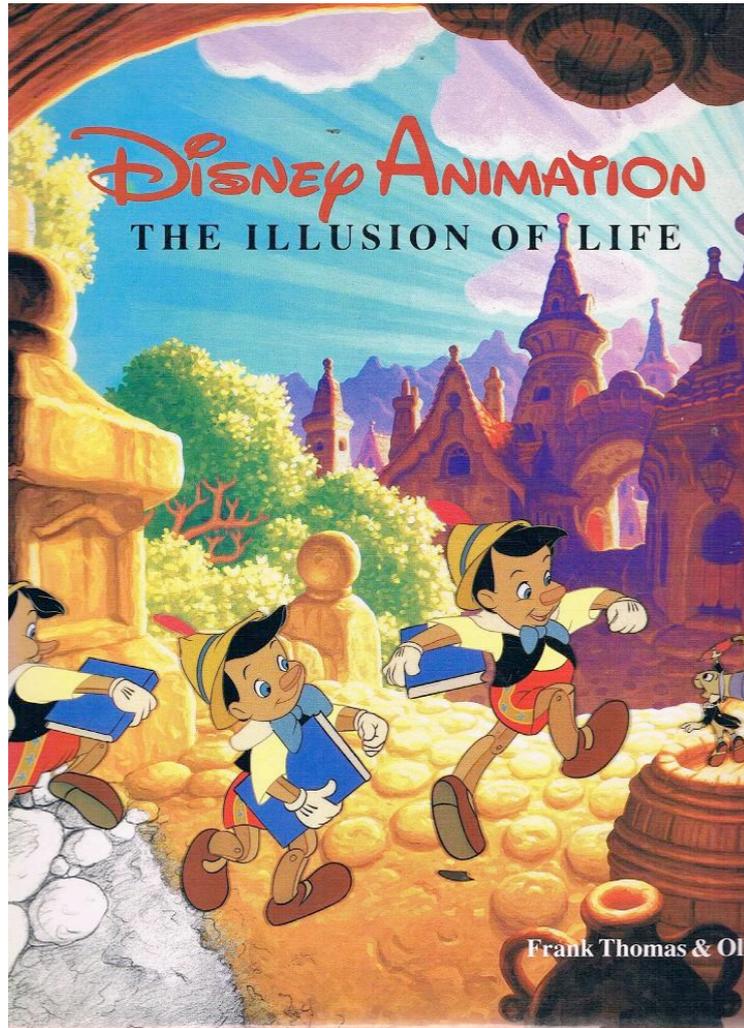
[Thomas & Johnston 1981]

[Lasseter, SIGGRAPH'87]

- Compression et étirement

Les transitions animées

Principes de conception



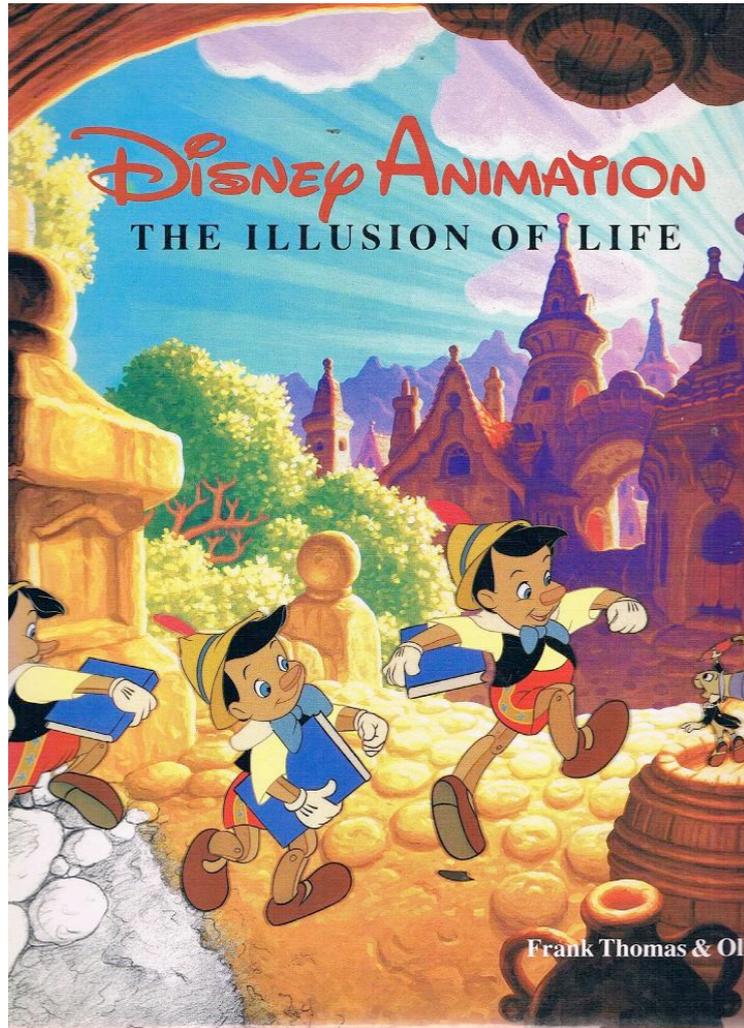
- ▶ Compression et étirement
- ▶ Anticipation

[Thomas & Johnston 1981]

[Lasseter, SIGGRAPH'87]

Les transitions animées

Principes de conception



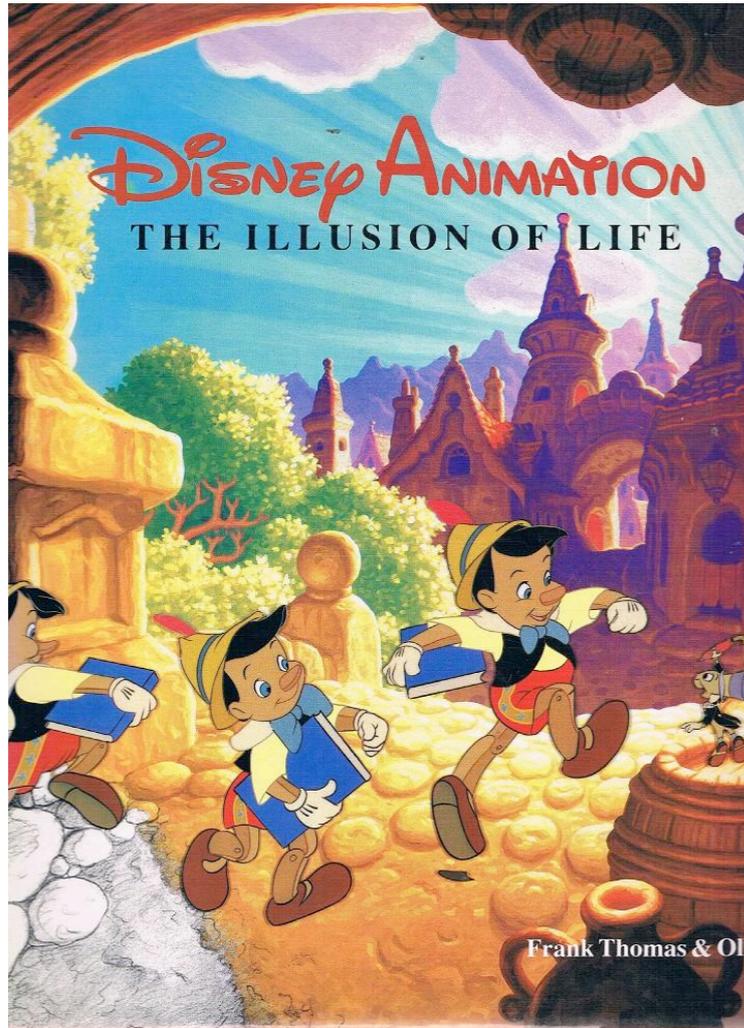
- ▶ Compression et étirement
- ▶ Anticipation
- ▶ Mise en relief

[Thomas & Johnston 1981]

[Lasseter, SIGGRAPH'87]

Les transitions animées

Principes de conception



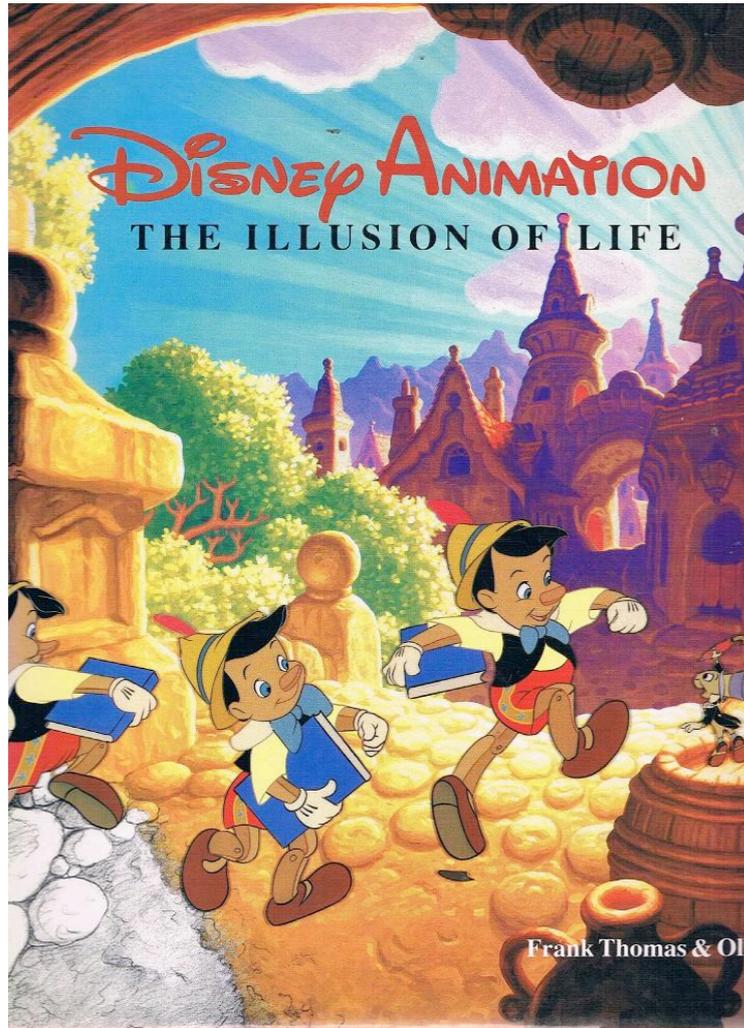
- ▶ Compression et étirement
- ▶ Anticipation
- ▶ Mise en relief
- ▶ Toute l'action d'un coup / partie par partie

[Thomas & Johnston 1981]

[Lasseter, SIGGRAPH'87]

Les transitions animées

Principes de conception



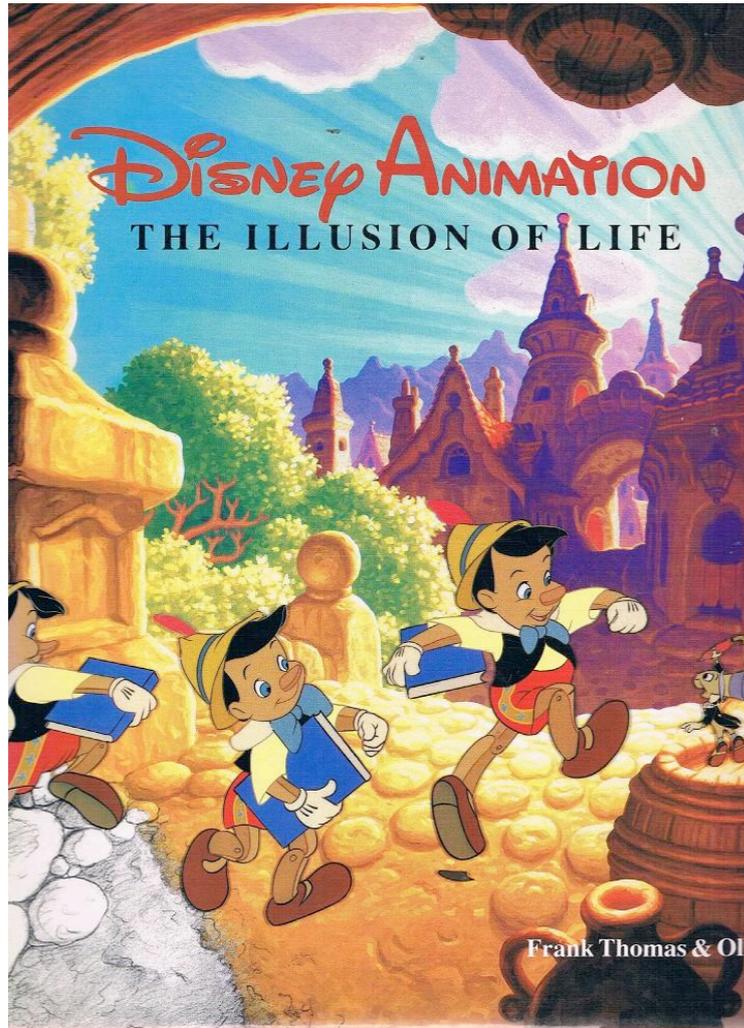
- ▶ Compression et étirement
- ▶ Anticipation
- ▶ Mise en relief
- ▶ Toute l'action d'un coup / partie par partie
- ▶ Continuité et chevauchement

[Thomas & Johnston 1981]

[Lasseter, SIGGRAPH'87]

Les transitions animées

Principes de conception



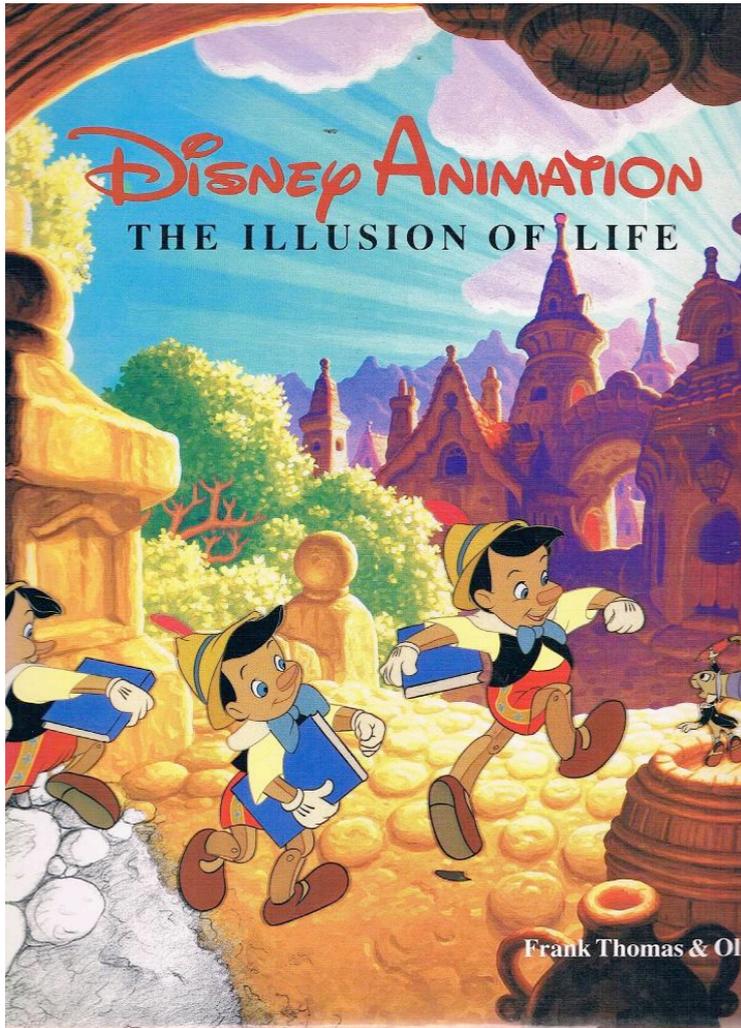
- ▶ Compression et étirement
- ▶ Anticipation
- ▶ Mise en relief
- ▶ Toute l'action d'un coup / partie par partie
- ▶ Continuité et chevauchement
- ▶ Ralentissement en début et fin

[Thomas & Johnston 1981]

[Lasseter, SIGGRAPH'87]

Les transitions animées

Principes de conception



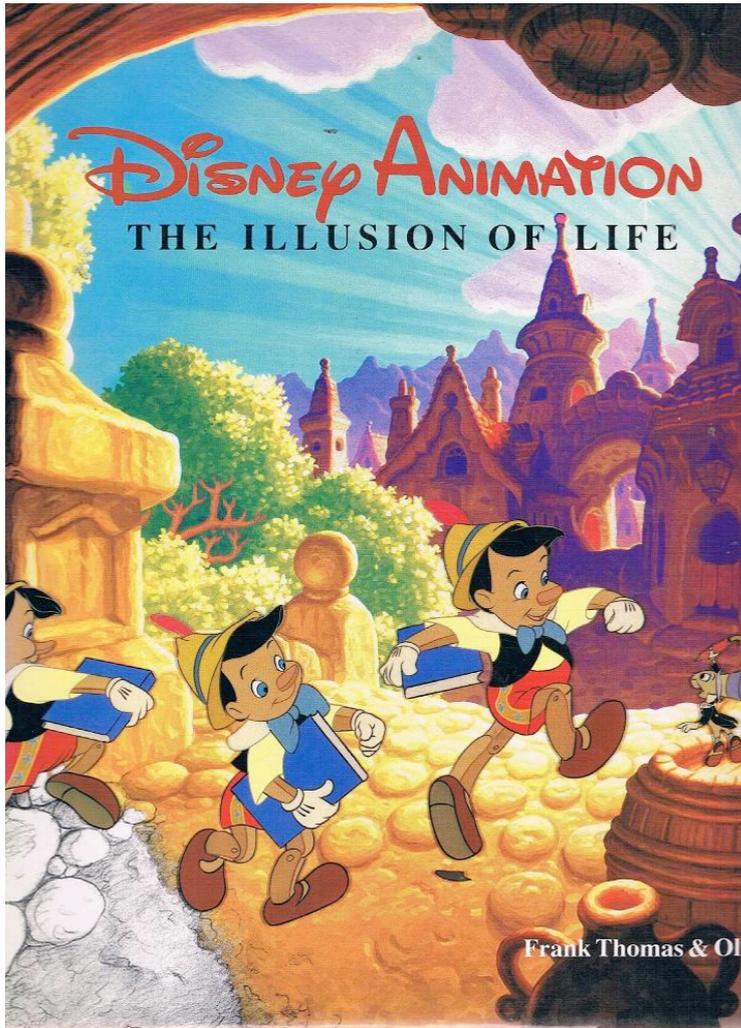
[Thomas & Johnston 1981]

[Lasseter, SIGGRAPH'87]

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- ▶ Anticipation
- ▶ Mise en relief
- ▶ Toute l'action d'un coup / partie par partie
- ▶ Continuité et chevauchement
- ▶ Ralentissement en début et fin
- ▶ Trajectoire arquée

Les transitions animées

Principes de conception



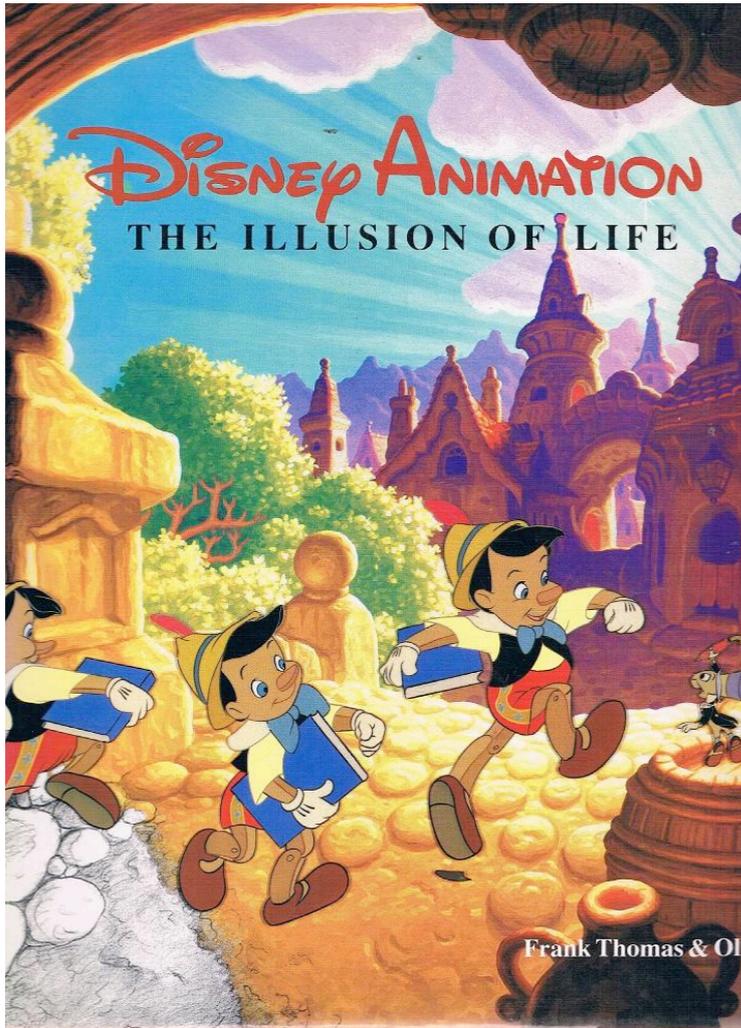
[Thomas & Johnston 1981]

[Lasseter, SIGGRAPH'87]

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- ▶ Ralentissement en début et fin
- ▶ Trajectoire arquée
- ▶ Action secondaire

Les transitions animées

Principes de conception



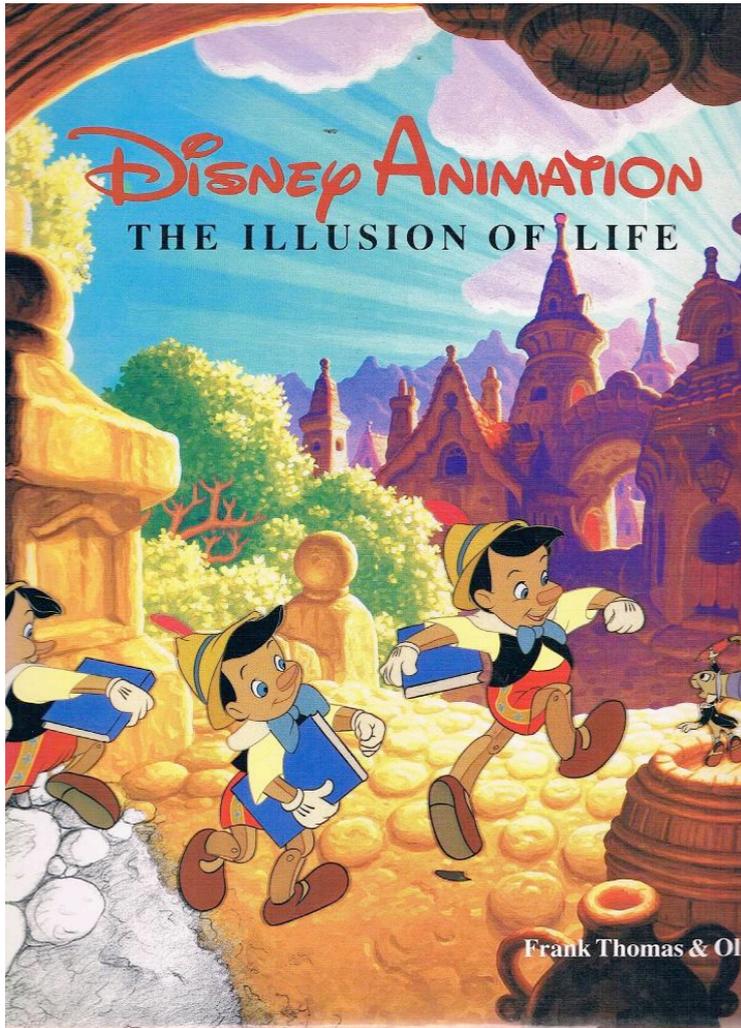
[Thomas & Johnston 1981]

[Lasseter, SIGGRAPH'87]

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- ▶ Anticipation
- ▶ Mise en relief
- ▶ Toute l'action d'un coup / partie par partie
- ▶ Continuité et chevauchement
- ▶ Ralentissement en début et fin
- ▶ Trajectoire arquée
- ▶ Action secondaire
- ▶ Cohérence physique

Les transitions animées

Principes de conception



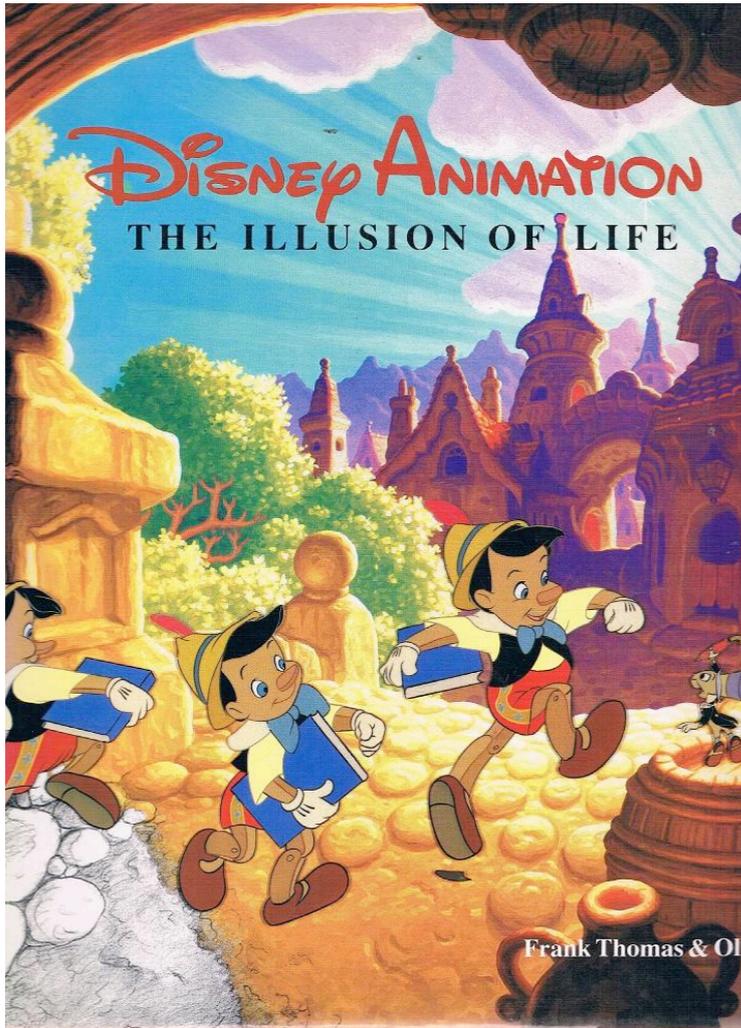
[Thomas & Johnston 1981]

[Lasseter, SIGGRAPH'87]

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- ▶ Mise en relief
- ▶ Toute l'action d'un coup / partie par partie
- ▶ Continuité et chevauchement
- ▶ Ralentissement en début et fin
- ▶ Trajectoire arquée
- ▶ Action secondaire
- ▶ Cohérence physique
- ▶ Exagération

Les transitions animées

Principes de conception



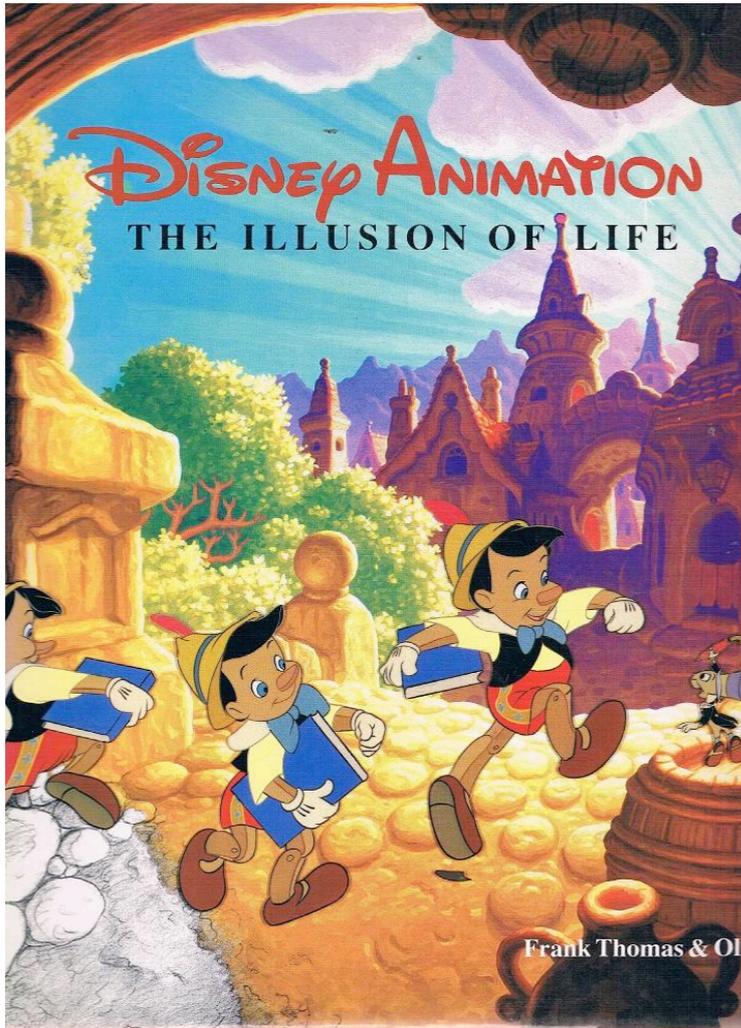
[Thomas & Johnston 1981]

[Lasseter, SIGGRAPH'87]

- ▶ Compression et étirement
- ▶ Anticipation
- ▶ Mise en relief
- ▶ Toute l'action d'un coup / partie par partie
- ▶ Continuité et chevauchement
- ▶ Ralentissement en début et fin
- ▶ Trajectoire arquée
- ▶ Action secondaire
- ▶ Cohérence physique
- ▶ Exagération
- ▶ Qualité du dessin

Les transitions animées

Principes de conception



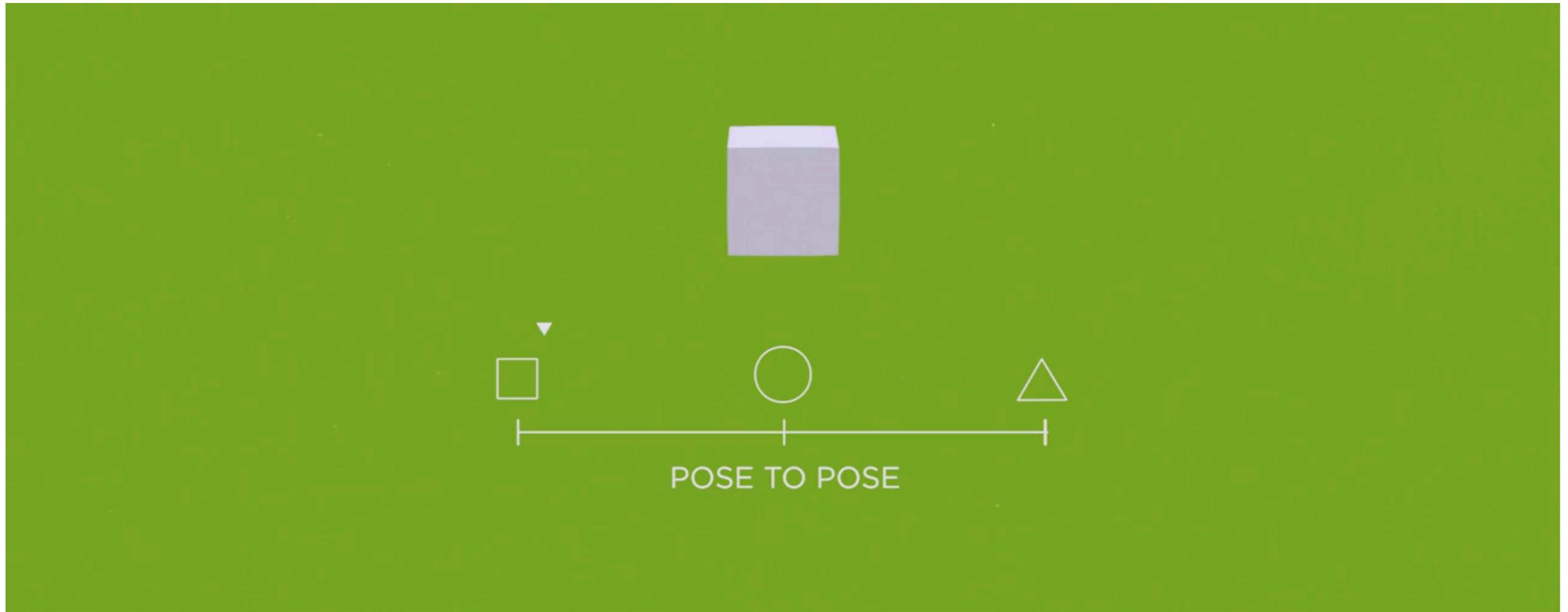
[Thomas & Johnston 1981]

[Lasseter, SIGGRAPH'87]

- ▶ Compression et étirement
- ▶ Anticipation
- ▶ Mise en relief
- ▶ Toute l'action d'un coup / partie par partie
- ▶ Continuité et chevauchement
- ▶ Ralentissement en début et fin
- ▶ Trajectoire arquée
- ▶ Action secondaire
- ▶ Cohérence physique
- ▶ Exagération
- ▶ Qualité du dessin
- ▶ Charisme

Les transitions animées

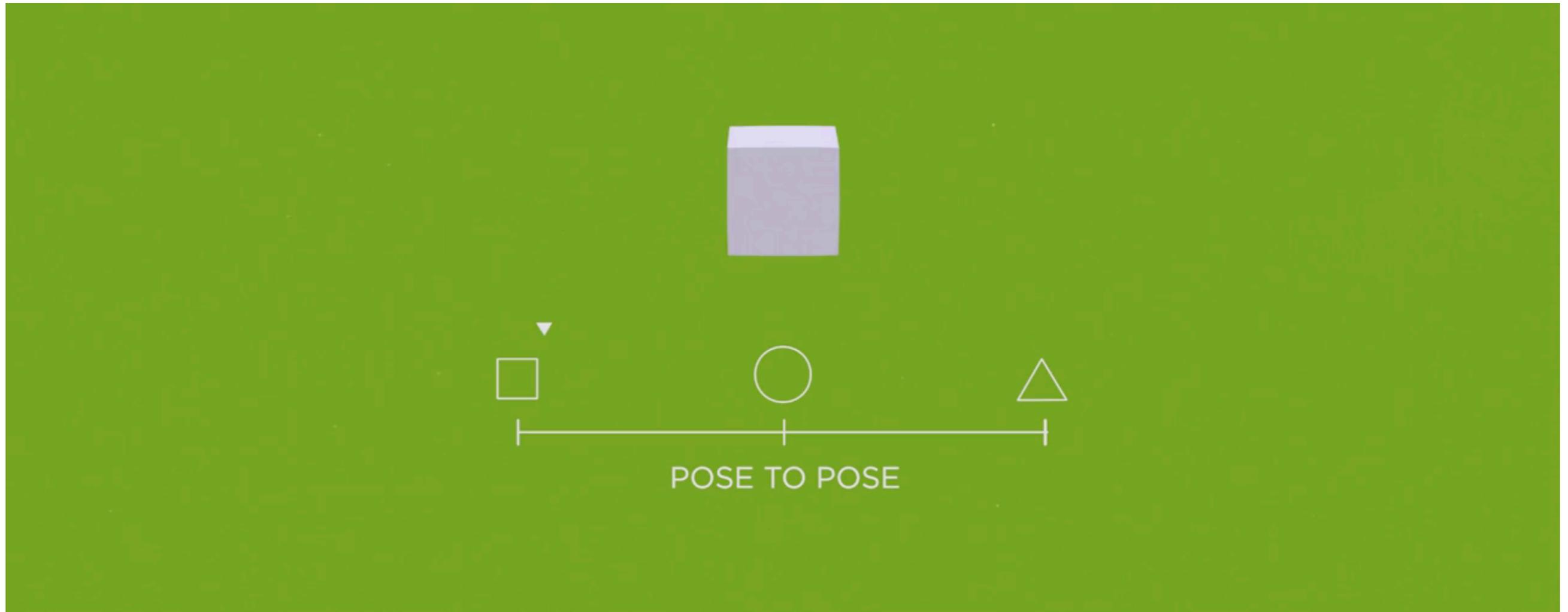
Principes de conception



<https://vimeo.com/93206523>

Les transitions animées

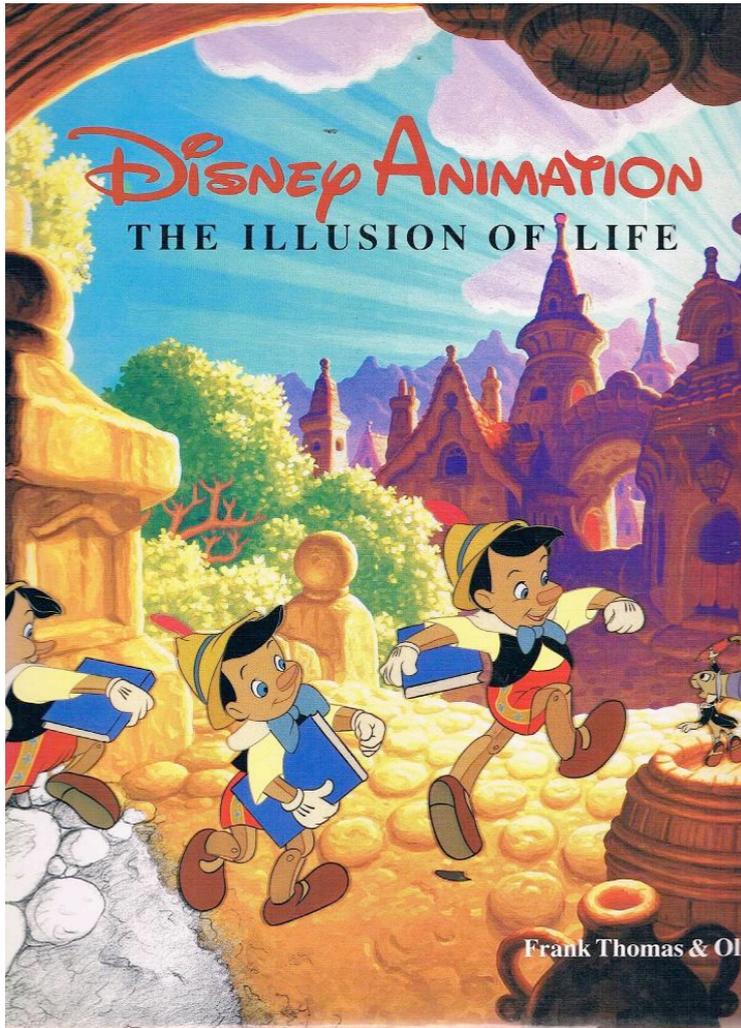
Principes de conception



<https://vimeo.com/93206523>

Les transitions animées

Principes de conception



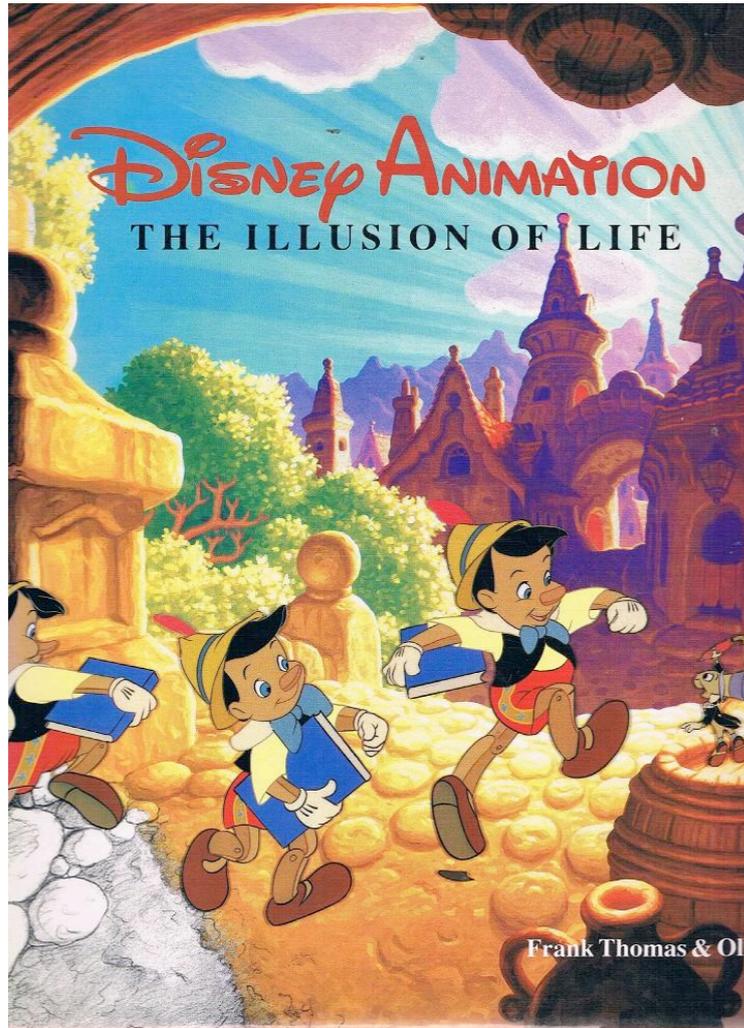
[Thomas & Johnston 1981]

[Lasseter, SIGGRAPH'87]

- ▶ Compression et étirement
- ▶ Anticipation
- ▶ Mise en relief
- ▶ Toute l'action d'un coup / partie par partie
- ▶ Continuité et chevauchement
- ▶ Ralentissement en début et fin
- ▶ Trajectoire arquée
- ▶ Action secondaire
- ▶ Cohérence physique
- ▶ Exagération
- ▶ Qualité du dessin
- ▶ Charisme

Les transitions animées

Principes de conception



[Thomas & Johnston 1981]

[Lasseter, SIGGRAPH'87]

- ▶ **Compression et étirement**
- ▶ Anticipation
- ▶ Mise en relief
- ▶ Toute l'action d'un coup / partie par partie
- ▶ Continuité et chevauchement
- ▶ Ralentissement en début et fin
- ▶ Trajectoire arquée
- ▶ Action secondaire
- ▶ Cohérence physique
- ▶ Exagération
- ▶ Qualité du dessin
- ▶ Charisme

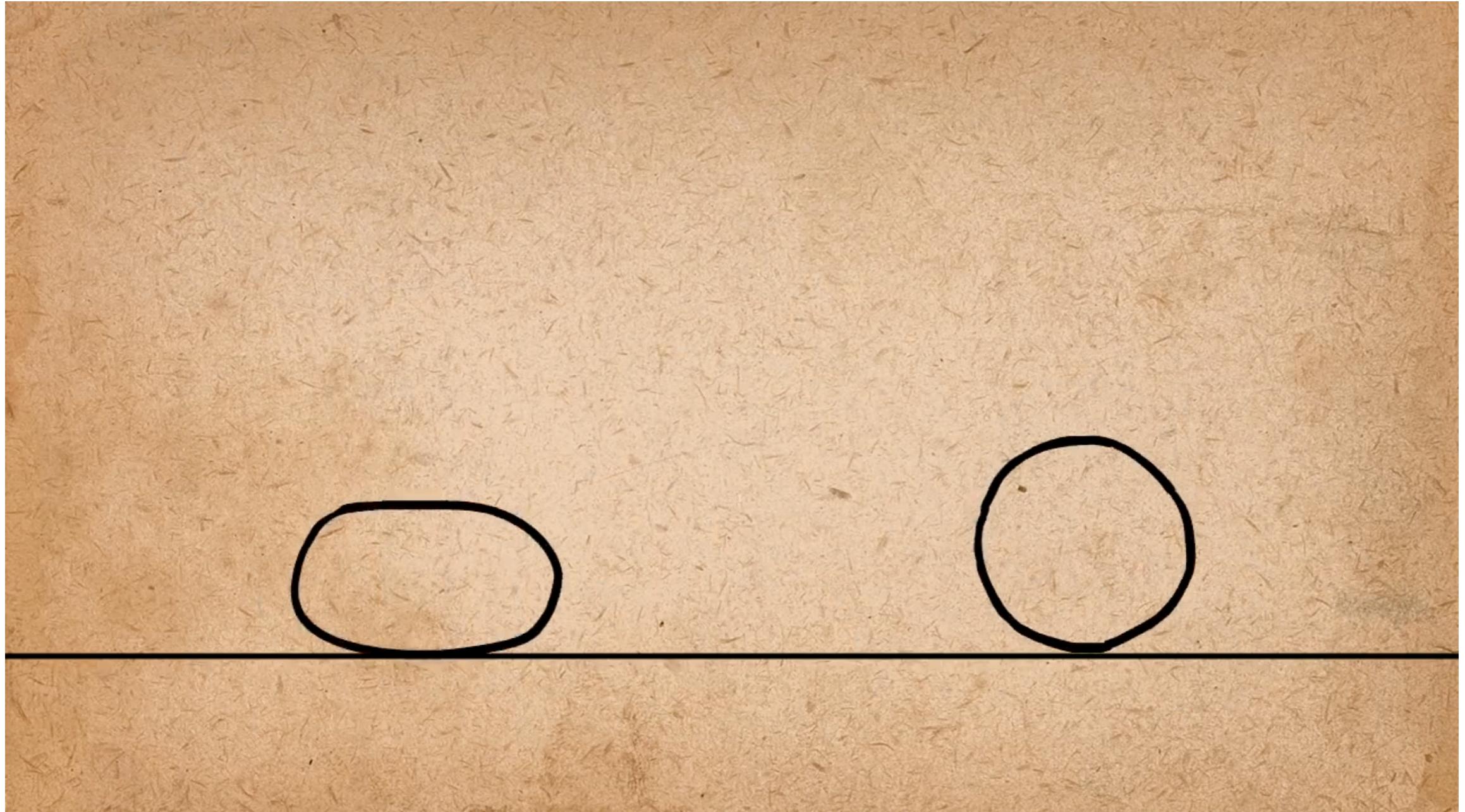
Les transitions animées

Compression et étirement



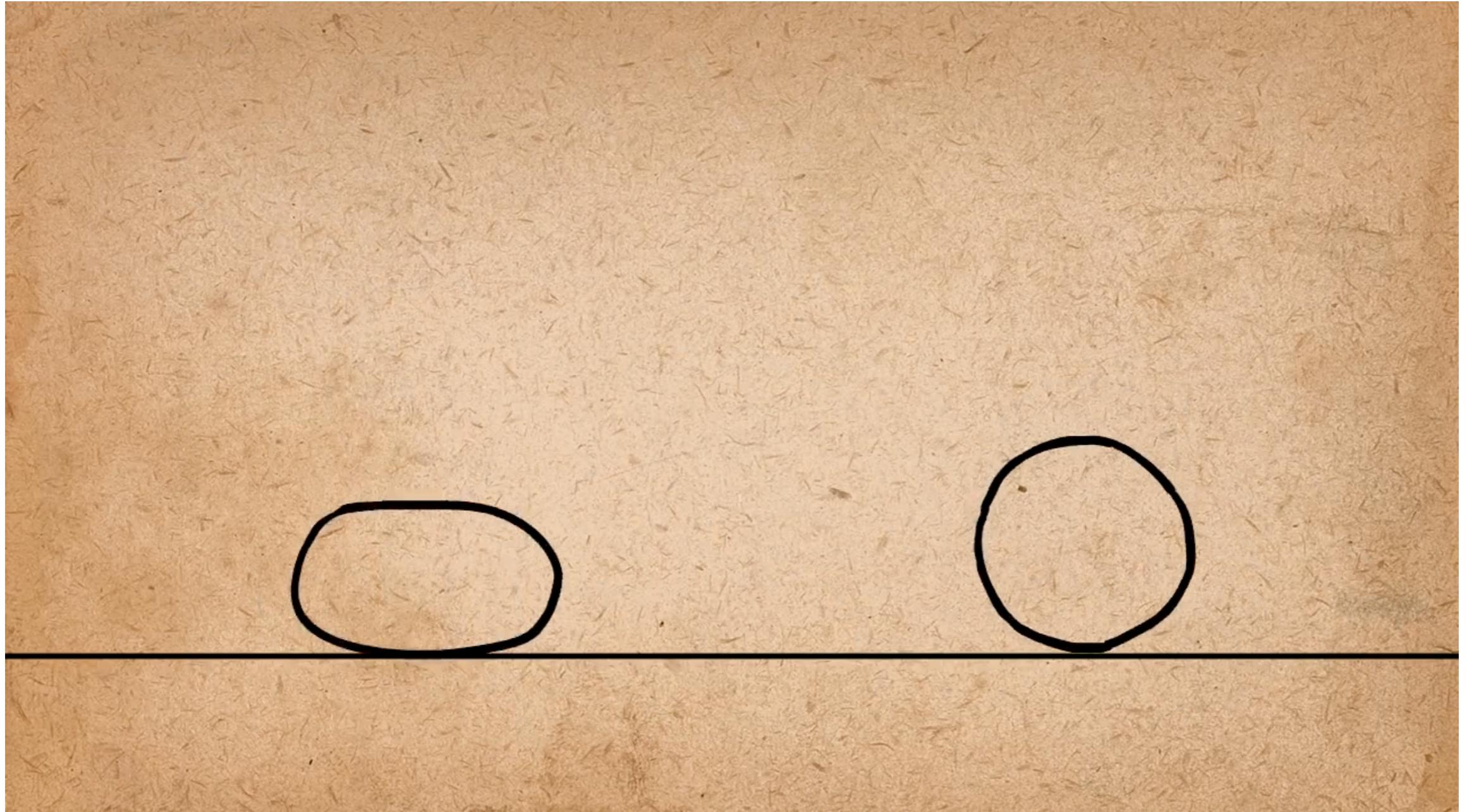
Les transitions animées

Compression et étirement



Les transitions animées

Compression et étirement



Les transitions animées

Compression et étirement

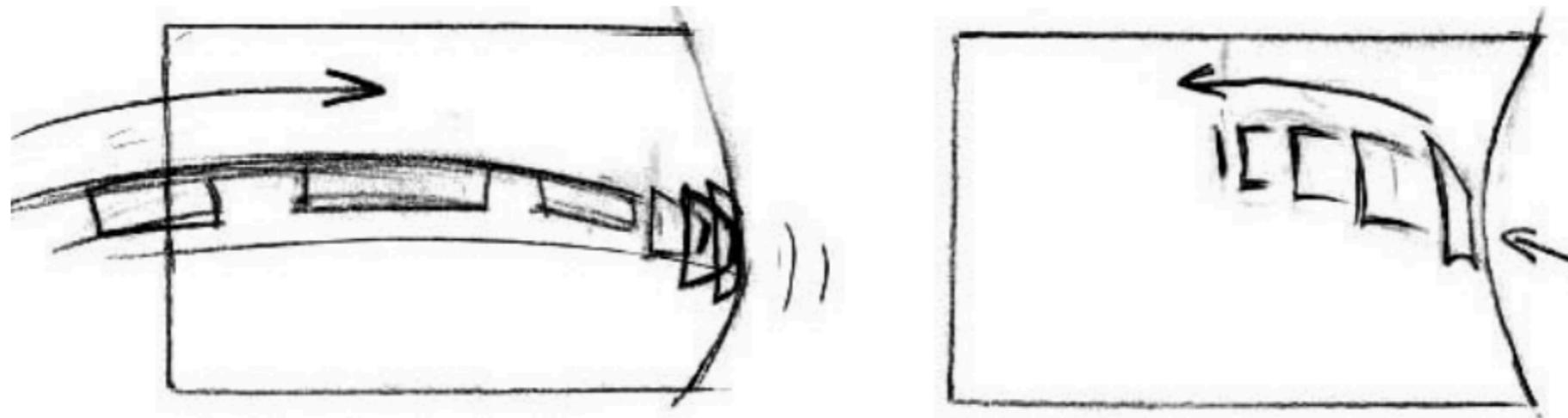
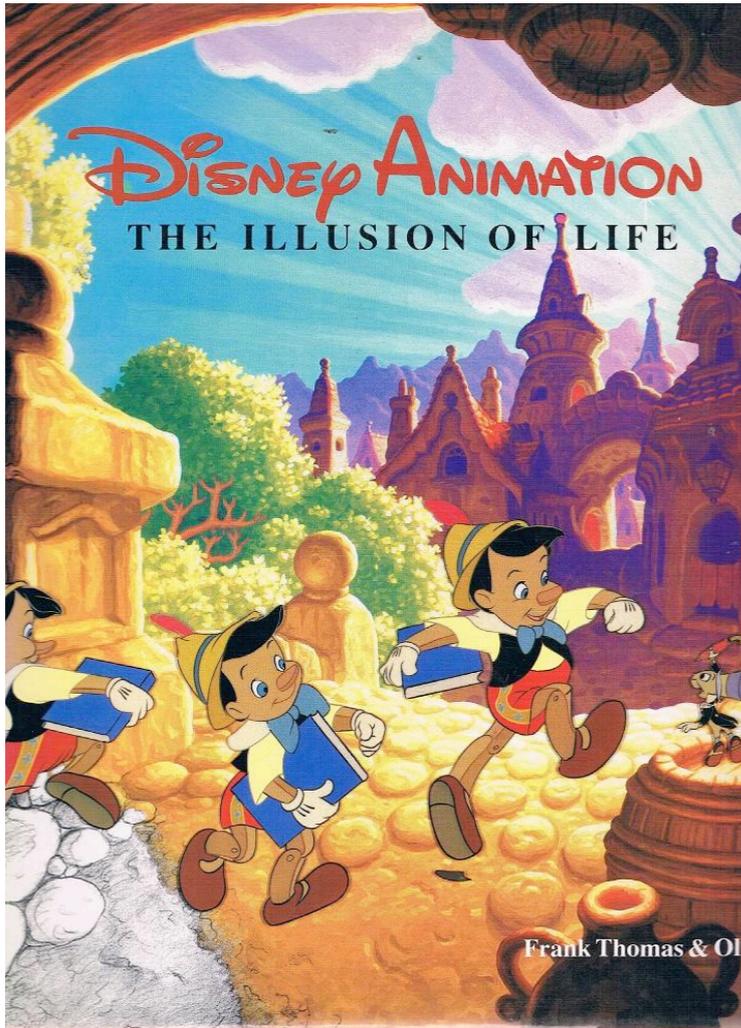


Figure 9 : story-board d'animatrice illustrant un effet d'apparition « fracassante » d'un objet

[Schlinger et al., IHM 2006]

Les transitions animées

Principes de conception



[Thomas & Johnston 1981]

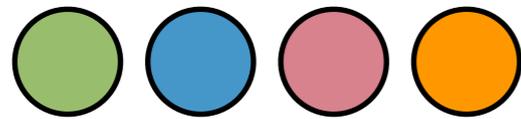
[Lasseter, SIGGRAPH'87]

- ▶ Compression et étirement
- ▶ Anticipation
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- ▶ Exagération
- ▶ Qualité du dessin
- ▶ Charisme

Les transitions animées

Continuité et chevauchement

Tout en même temps

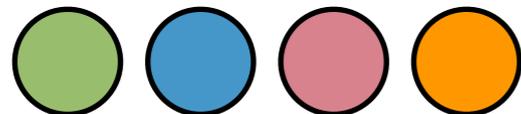


[Chevalier et al., Infovis 14]

Les transitions animées

Continuité et chevauchement

Tout en même temps

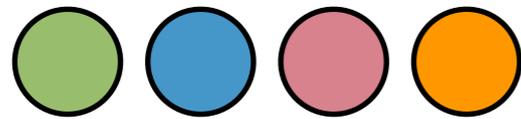


[Chevalier et al., Infovis 14]

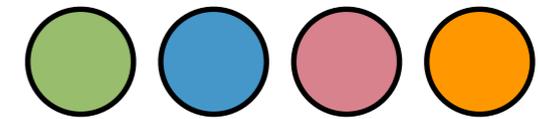
Les transitions animées

Continuité et chevauchement

Tout en même temps



Séquence

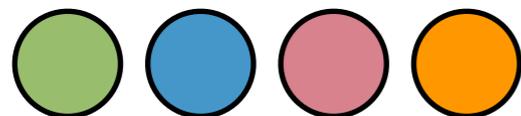
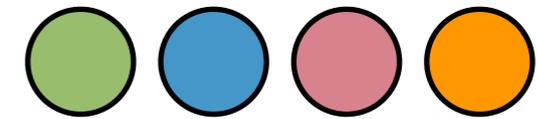


Les transitions animées

Continuité et chevauchement

Tout en même temps

Séquence

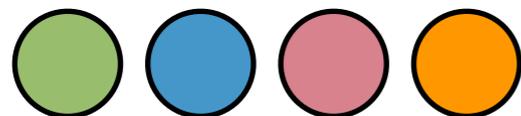


[Chevalier et al., Infovis 14]

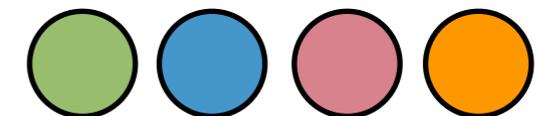
Les transitions animées

Continuité et chevauchement

Tout en même temps



Séquence

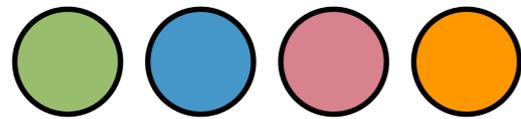


[Chevalier et al., Infovis 14]

Les transitions animées

Continuité et chevauchement

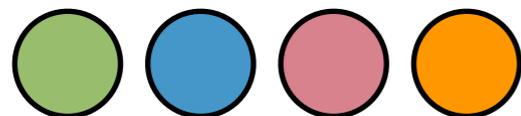
Tout en même temps



Les transitions animées

Continuité et chevauchement

Tout en même temps



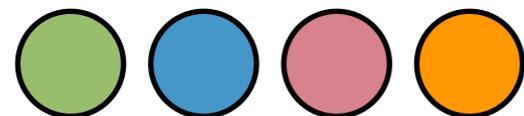
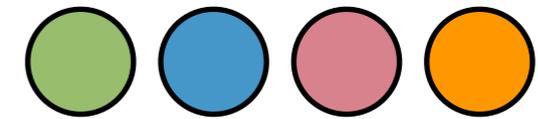
[Chevalier et al., Infovis 14]

Les transitions animées

Continuité et chevauchement

Tout en même temps

Séquence

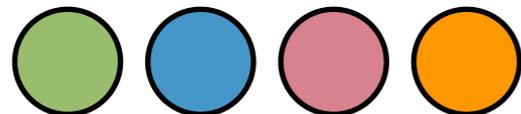


[Chevalier et al., Infovvis 14]

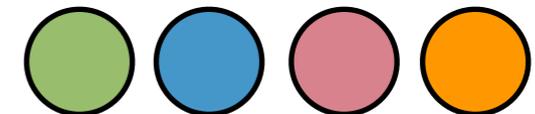
Les transitions animées

Continuité et chevauchement

Tout en même temps



Séquence



[Chevalier et al., Infovis 14]

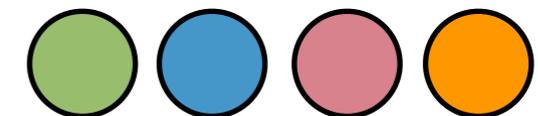
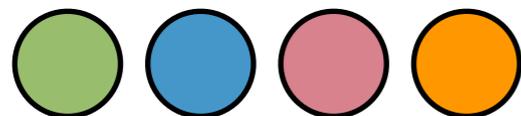
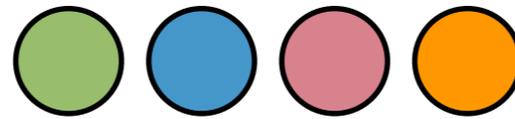
Les transitions animées

Continuité et chevauchement

Tout en même temps

Chevauchement

Séquence

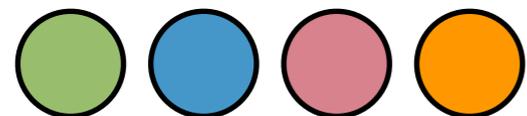


[Chevalier et al., Infovis 14]

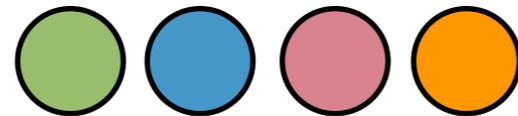
Les transitions animées

Continuité et chevauchement

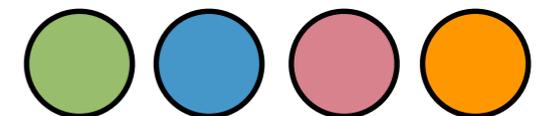
Tout en même temps



Chevauchement



Séquence



[Chevalier et al., Infovis 14]

Les transitions animées

Continuité et chevauchement

The following video is a demonstration of your task

[Chevalier et al., Infovis 14] - <http://fannychevalier.net/animations>
<https://www.youtube.com/watch?v=2MfWF6sLzpo>

Les transitions animées

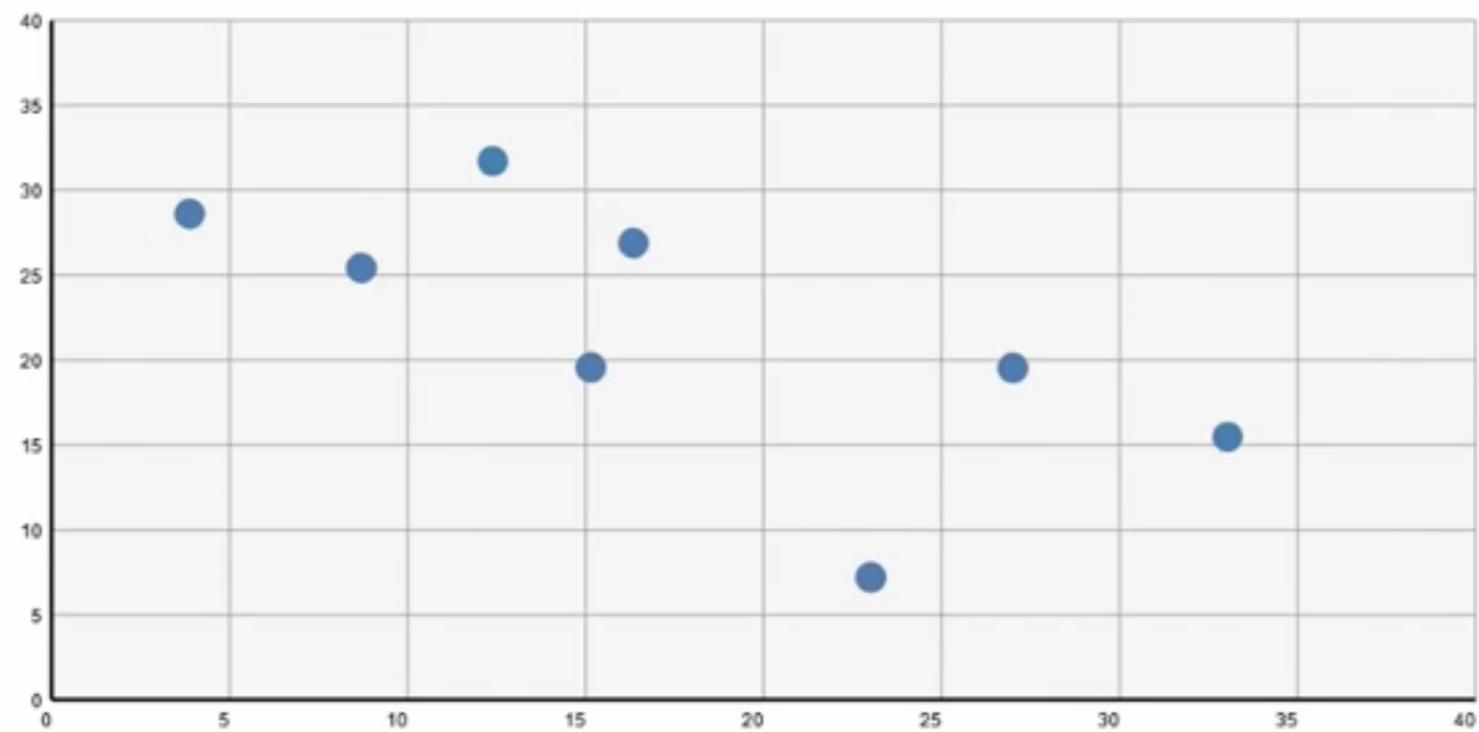
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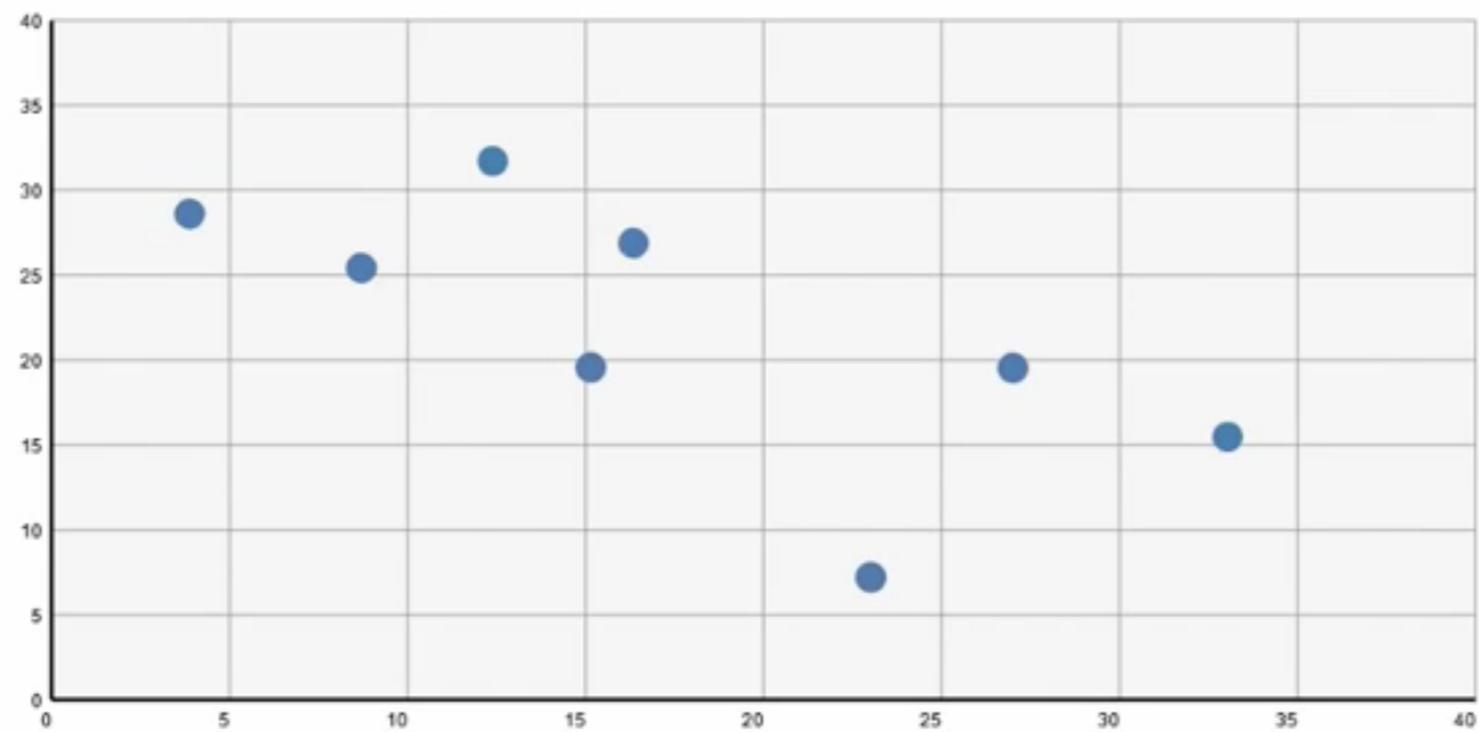
Continuité et chevauchement



[Heer et al., Infovis 2011] - <https://www.youtube.com/watch?v=vLk7mlAtEXI>

Les transitions animées

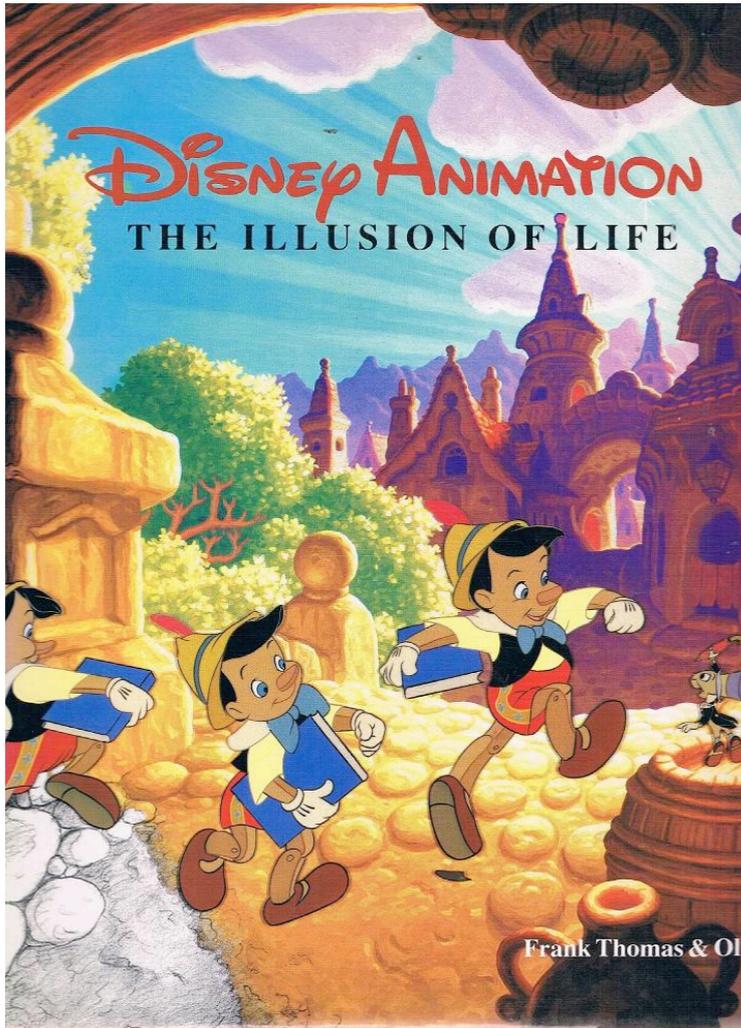
Continuité et chevauchement



[Heer et al., Infovis 2011] - <https://www.youtube.com/watch?v=vLk7mlAtEXI>

Les transitions animées

Principes de conception



[Thomas & Johnston 1981]

[Lasseter, SIGGRAPH'87]

- ▶ Compression et étirement
- ▶ Anticipation
- ▶ Mise en relief
- ▶ Toute l'action d'un coup / partie par partie
- ▶ Continuité et chevauchement
- ▶ **Ralentissement en début et fin**
- ▶ Trajectoire arquée
- ▶ Action secondaire
- ▶ Cohérence physique
- ▶ Exagération
- ▶ Qualité du dessin
- ▶ Charisme

Les transitions animées

Ralentissement en début et fin



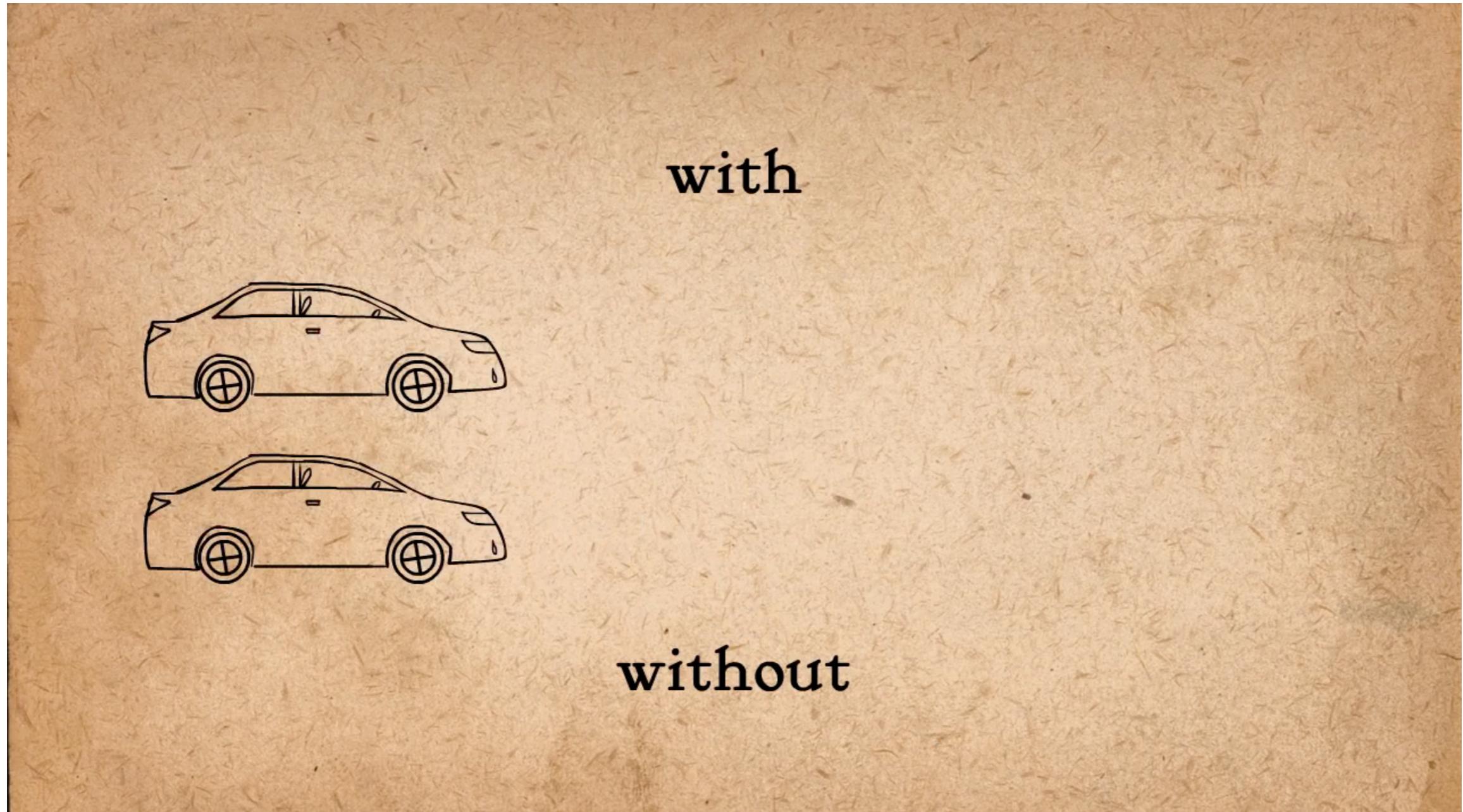
Les transitions animées

Ralentissement en début et fin



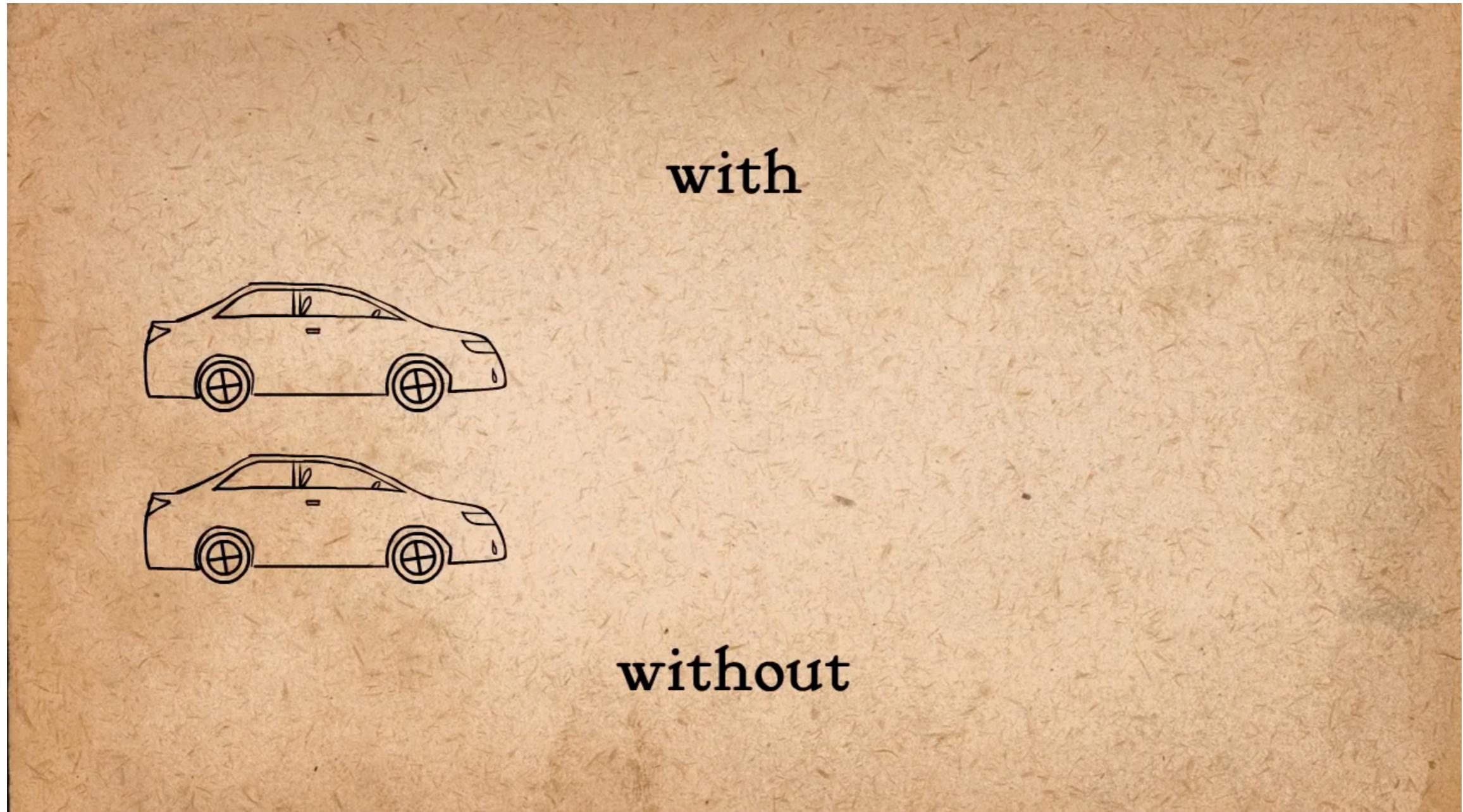
Les transitions animées

Ralentissement en début et fin



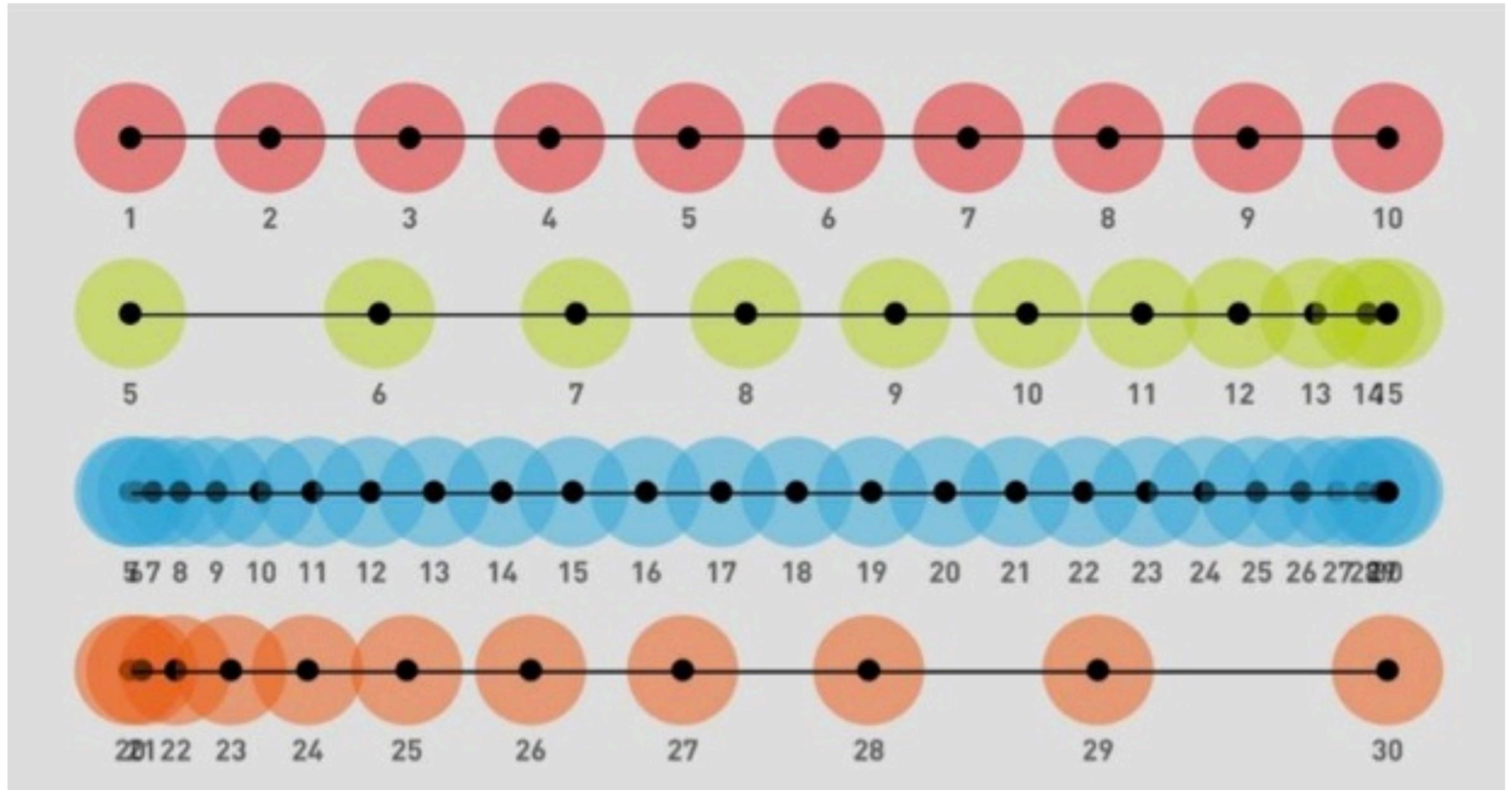
Les transitions animées

Ralentissement en début et fin



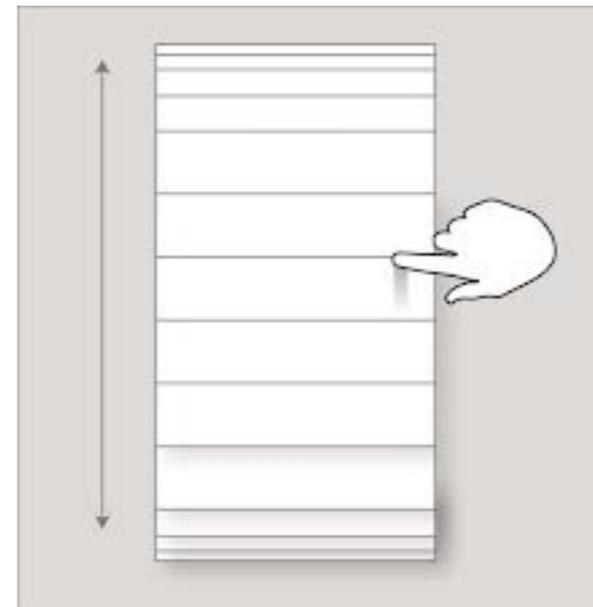
Les transitions animées

Ralentissement en début et fin



Les transitions animées

Ralentissement en début et fin



Effet d'inertie (slow-out)

Les transitions animées

Ralentissement en début et fin

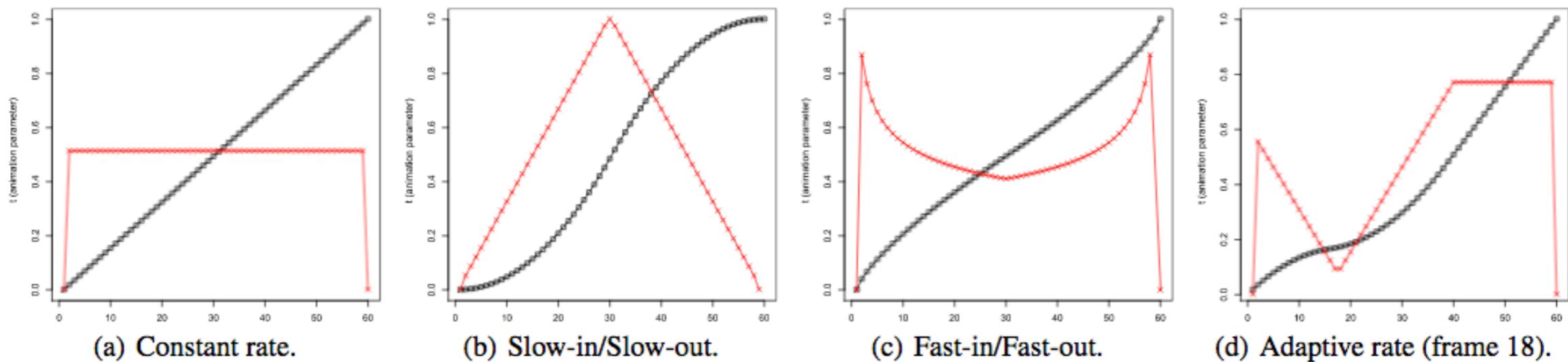
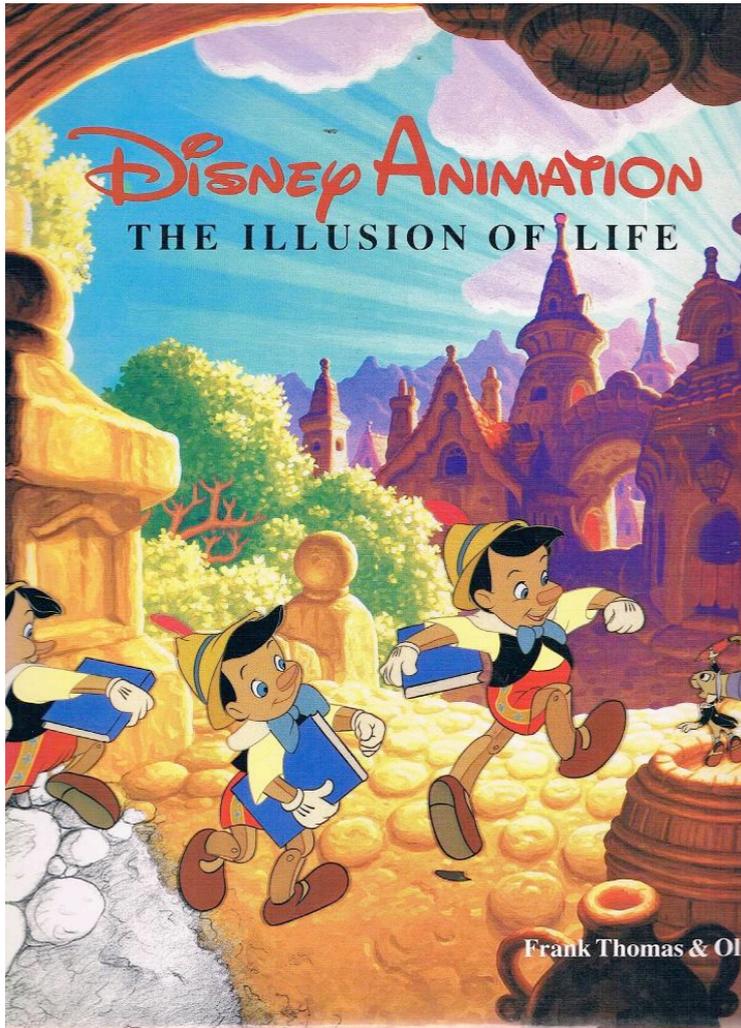


Figure 2. Evolution of the animation parameter t (black squares) and animation rate Δt (red crosses) for 4 different temporal pacing strategies in an animation consisting of $n = 60$ frames. The animation rate is normalized across all 4 techniques to allow for comparison. For adaptive speed, the technique has detected a complexity peak at frame 18. Note that all techniques except SI/SO have abrupt speed changes at the start and end.

Les transitions animées

Principes de conception



[Thomas & Johnston 1981]

[Lasseter, SIGGRAPH'87]

- ▶ Compression et étirement
- ▶ Anticipation
- ▶ Mise en relief
- ▶ Toute l'action d'un coup / partie par partie
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- ▶ Exagération
- ▶ Qualité du dessin
- ▶ Charisme

Les transitions animées

Flou de mouvement (motion blur)

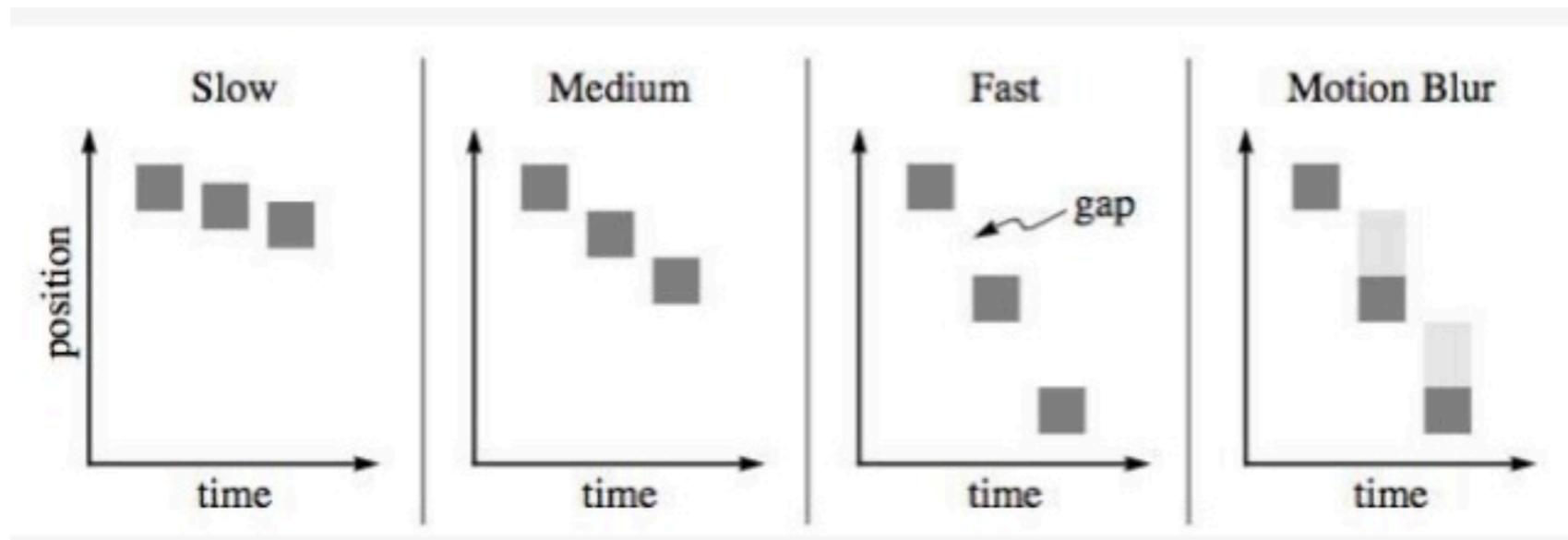
Dans le monde réel, les objets laissent l'impression de laisser une trace derrière eux, dans notre système visuel



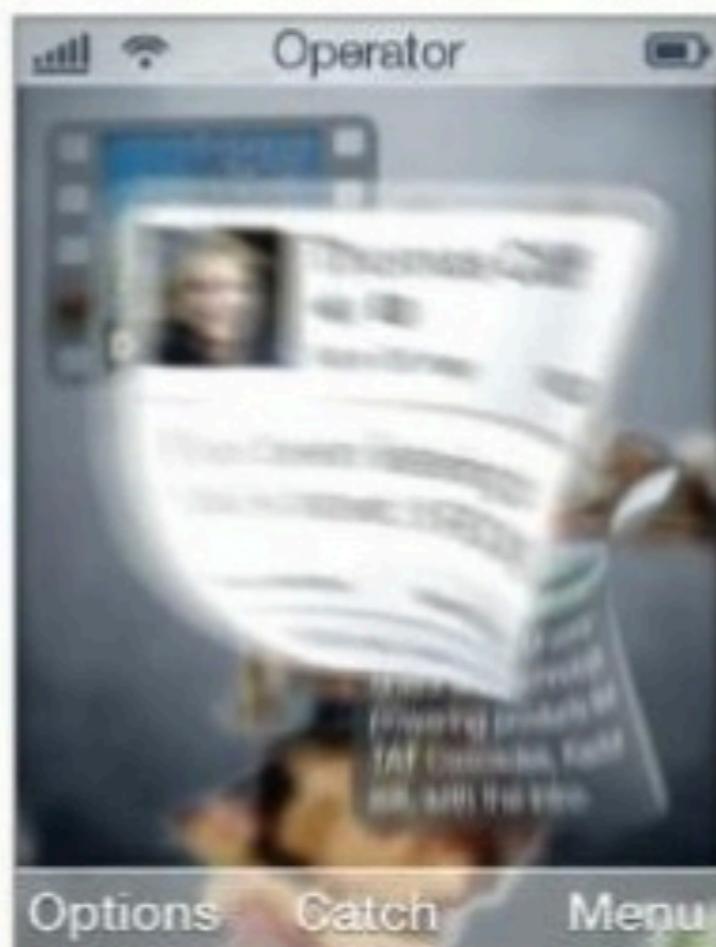
Les transitions animées

Flou de mouvement (motion blur)

Une règle d'or: si un objet bouge plus de la moitié de sa taille entre deux frames, alors il faut utiliser du **motion blur**







Les transitions animées

Questions de recherche

Sont-elles utiles ?

- ▶ Expériences contrôlées

Comment les réaliser ?

- ▶ Implicite Vs. Explicite

Comment les concevoir ?

- ▶ Règles de conception

Comment mieux les exploiter ?

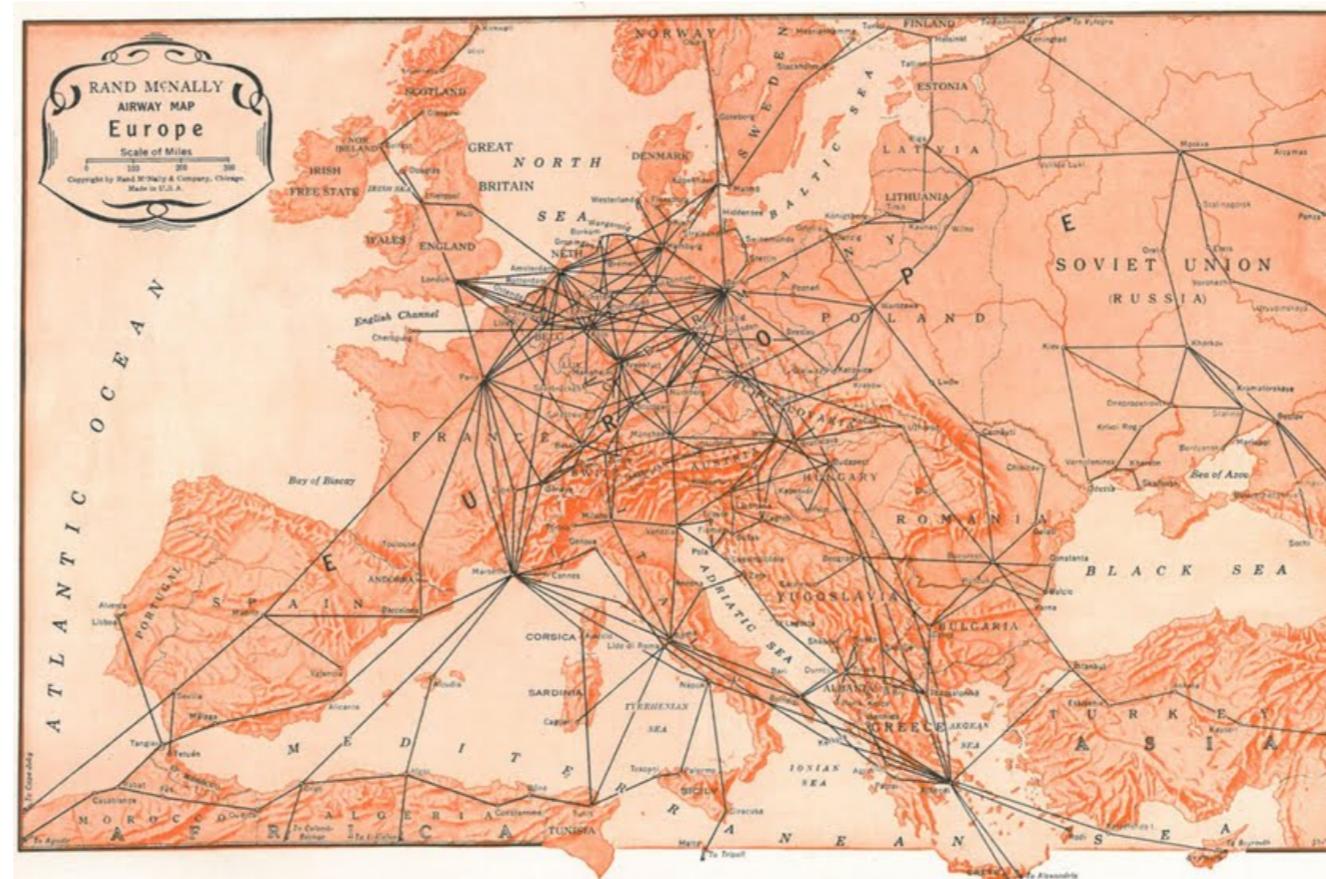
- ▶ Nouveaux usages et applications

#1 Analyse de graphes

Analyse de graphes

Lecture et navigation

Quels sont les aéroports européens desservis par ORY ?



Analyse de graphes

Lecture et navigation

Quels sont les aéroports européens desservis par ORY ?



Analyse de graphes

Lecture et navigation

Topology-Aware Navigation
in Large Networks

[Moscovich et al., CHI 2009]

Analyse de graphes

Lecture et navigation

Topology-Aware Navigation
in Large Networks

[Moscovich et al., CHI 2009]

Analyse de graphes

Lecture et navigation

A quoi ressemble mon réseau social ?



Analyse de graphes

Analyse de réseaux sociaux



Attributs intrinsèques

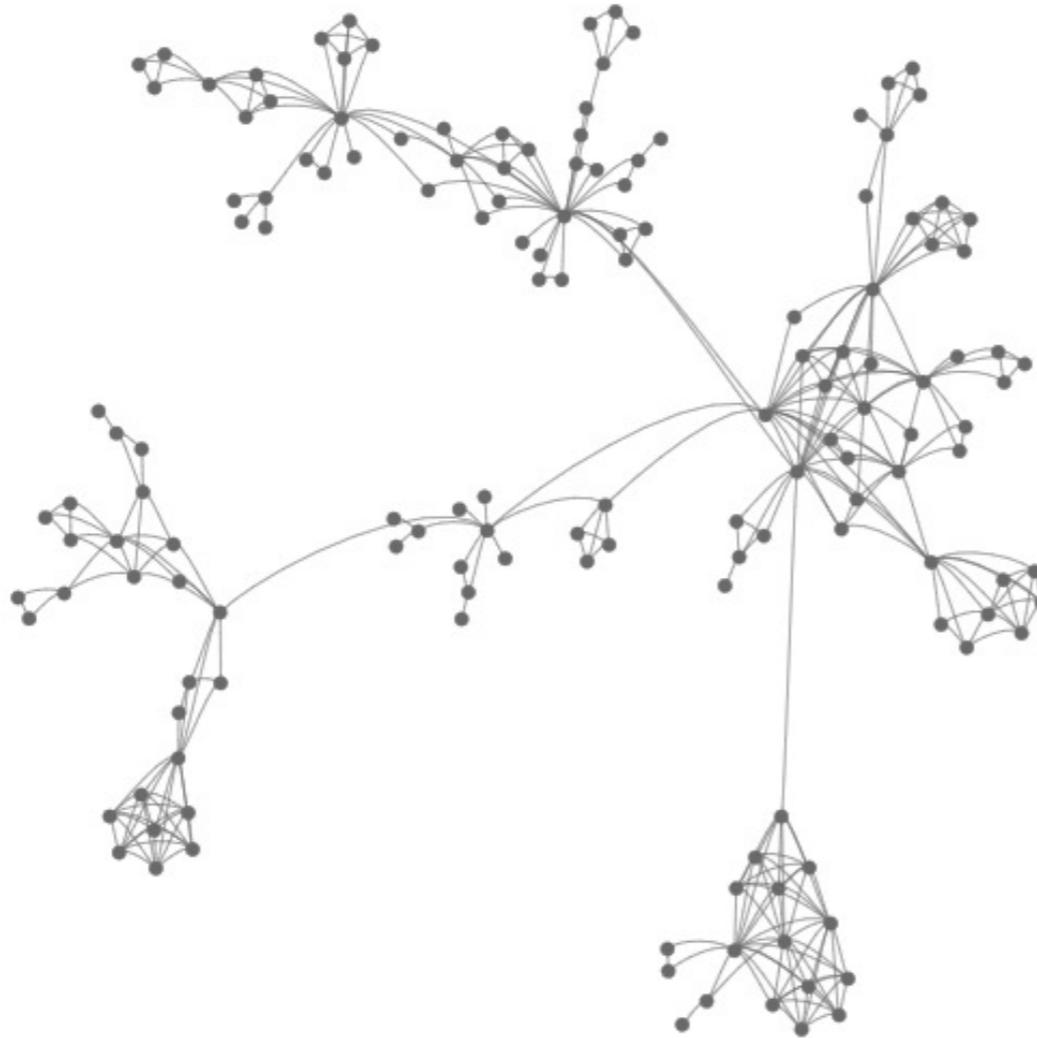
- ▶ # publications
- ▶ # citations
- ▶ année
- ▶ position
- ▶ ...

Attributs calculés

- ▶ degré
- ▶ centralité
- ▶ coefficient clustering
- ▶ ...

Analyse de graphes

Analyse de réseaux sociaux



Attributs intrinsèques

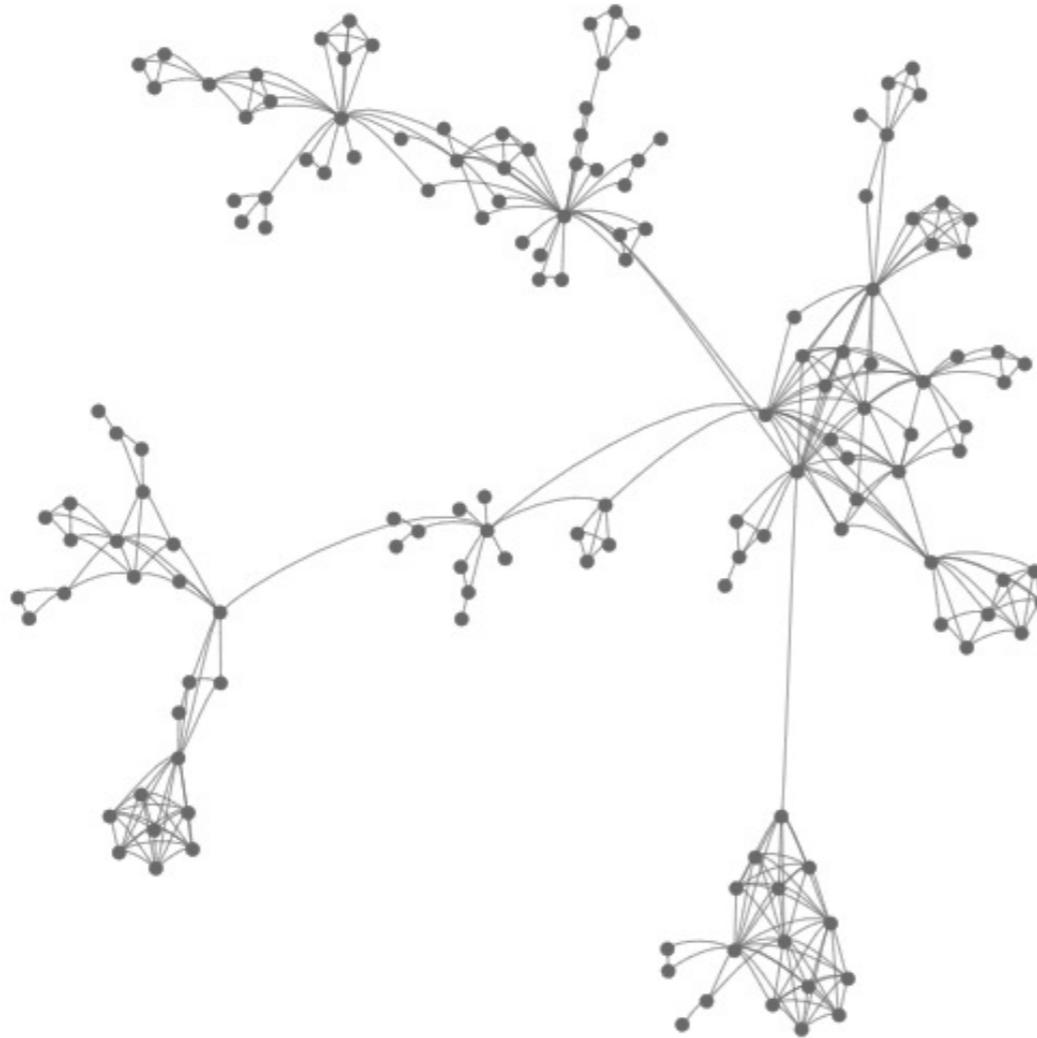
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Analyse de graphes

Analyse de réseaux sociaux



Attributs intrinsèques

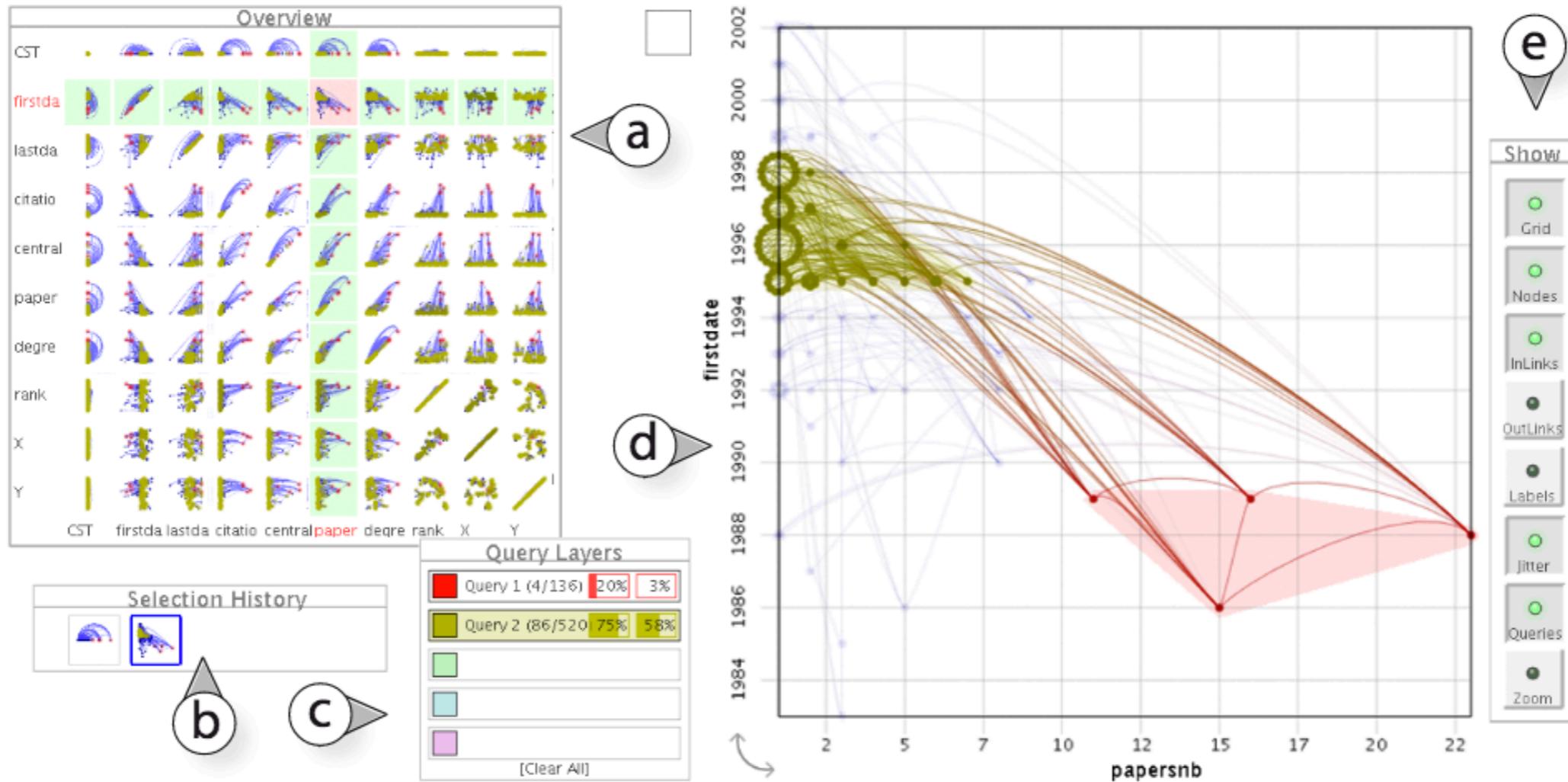
- ▶ # publications
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Analyse de graphes

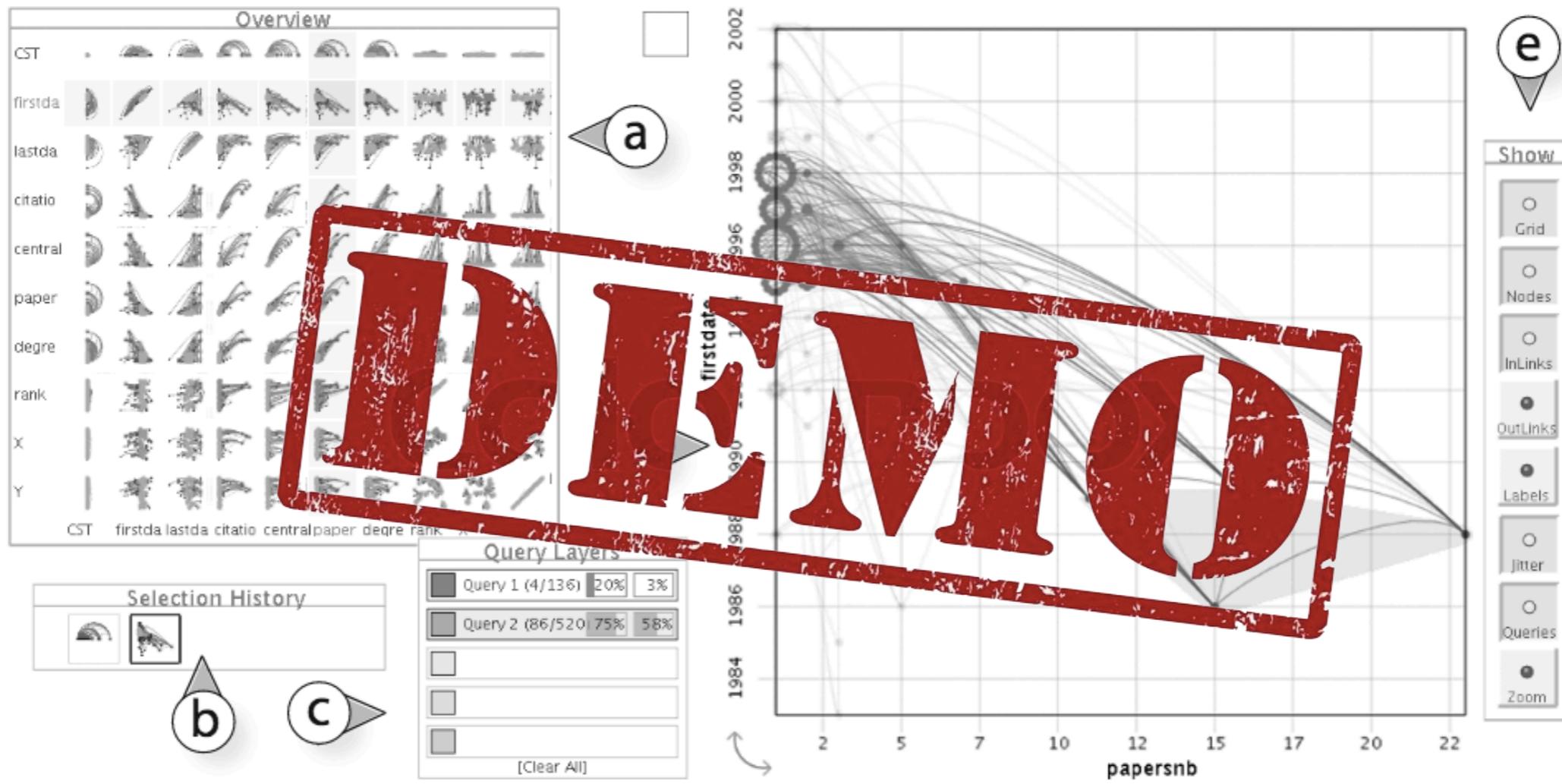
GraphDice



[Bezerianos et al., Eurographics 2010] - <http://www.aviz.fr/graphdice/>

Analyse de graphes

GraphDice



[Bezerianos et al., Eurographics 2010] - <http://www.aviz.fr/graphdice/>

Analyse de graphes

GraphDice

*« toutes les combinaisons sont immédiatement accessibles
pour explorer les hypothèses. »*

« Je peux utiliser l'outil pour communiquer. »

« L'animation m'aide à comprendre. »

[Bezerianos et al., Eurographics 2010] - <http://www.aviz.fr/graphdice/>

#2 Manipulation de contenu

Manipulation de contenu

Historique de révisions

CHANGES ↓

YOUR CURRENT DRAFT

I wanted to show off a preview of what I've been working on.

It's version control for writers. I call it Draft.

As a writer, I've been very annoyed at the version control options I have. Software like iCloud and Google Docs end up sharing a lot of arbitrary changes making it very hard to find an old draft that has that certain paragraph I ended up deleting and now want back.

And when I share a Google Doc with someone to help edit it, they overwrite my master copy making it insanley difficult to just accept individual changes they've made.

Draft solves this. Draft is a distraction free editor that auto-saves as you type. But as you go along, you can mark major versions of your work:

<http://i.imgur.com/H2TejDY.png>

And when you share your document any changes your collaborator makes are on their own copy of the document. But you get

har

av

ACCEPT THIS CHANGE

l

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ACCEPT THIS CHANGE

A lot of folks try to end up learning Git, which is a popular version control system used by software developers. It really is a great tool if you're in software development. But even as a developer it's full of headaches. Writers don't need all this added

LYNETTE'S CURRENT DRAFT

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It's version control for writers. I call it Draft.

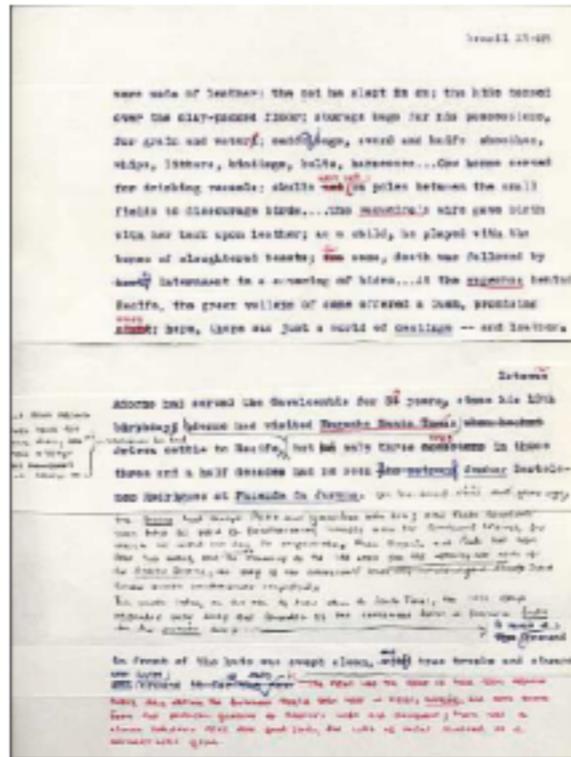
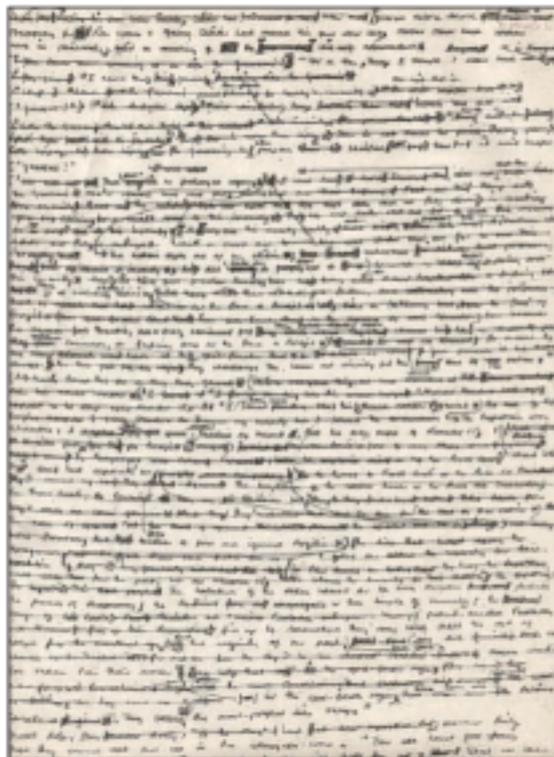
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A lot of folks try to end up learning Git, which is a popular version control system used by software developers. It really is a great tool if you're in software development. But even as a developer it's full of headaches. Writers don't need all this added complexity and overhead to manage versions of their work.

Manipulation de contenu

Historique de révisions



Manipulation de contenu

Historique de révisions



Manipulation de contenu

Historique de révisions

The panel is the right wing of a devotional and hinged triptych; the lost center panel is recorded in sixteenth-century inventories as a Virgin and Child, and the left panel depicts Tommaso. The panels were commissioned by Tommaso, a member of a prominent Florentine family. Tommaso was an intimate of Charles the Bold and an ambitious manager of the Bruges branch of a bank controlled by Lorenzo de' Medici, [1] and a well known and active patron of Flemish art.[2] Tommaso eventually lost his position due to a series of large and risky unsecured loans given to Charles.[3]

Manipulation de contenu

Historique de révisions

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Manipulation de contenu

Diffamation

of input in addition to or in place of typed command strings.

Voice user interfaces, which accept input and provide output by generating voice prompts which are transmitted via a telephone network and heard by the user using a telephone. The user input is made by pressing telephone keys.

Natural-Language interfaces - Used for

of input in addition to or in place of typed command strings.

Voice user interfaces, which accept input and provide output by generating voice prompts. The user input is made by pressing keys or buttons, or responding verbally to the interface.

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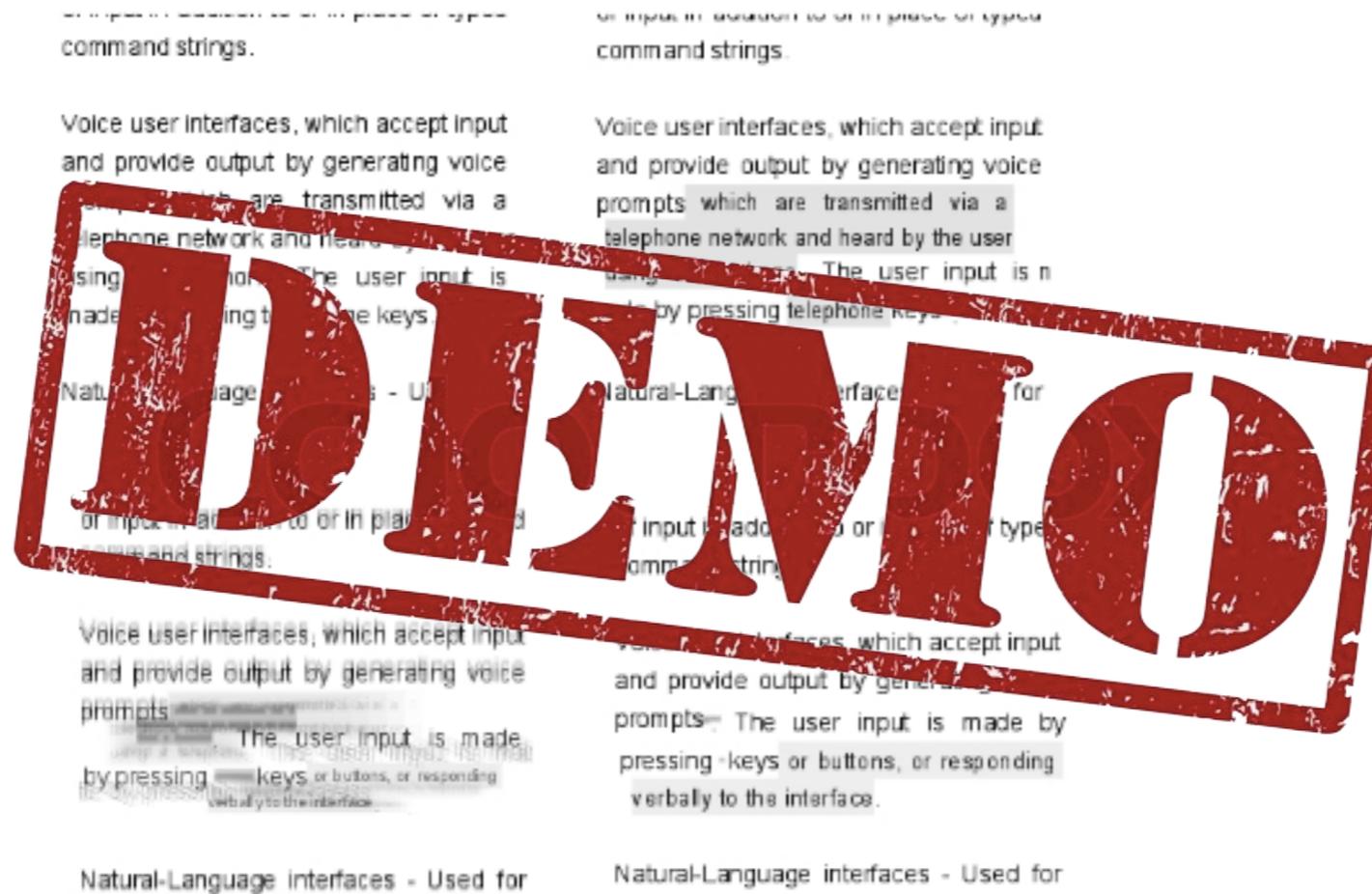
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Natural-Language interfaces - Used for

[Chevalier et al., CHI 2010] - <https://aviz.fr/diffamation/>

Manipulation de contenu

Diffamation



[Chevalier et al., CHI 2010] - <https://aviz.fr/diffamation/>
<http://tan.lille.inria.fr/diffamation/?lang=fr>

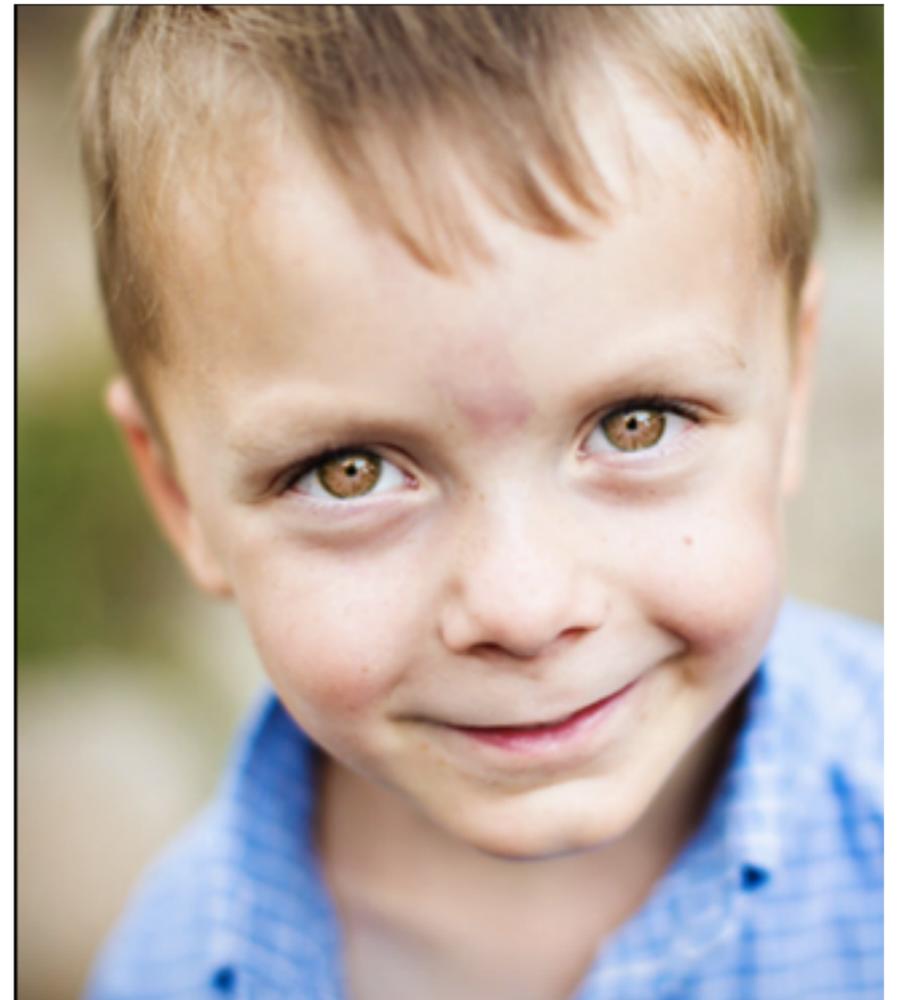
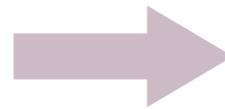
Manipulation de contenu

Manipulation d'image



Manipulation de contenu

Manipulation d'image

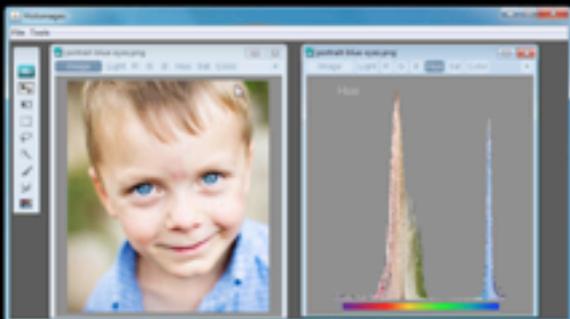


Manipulation de contenu

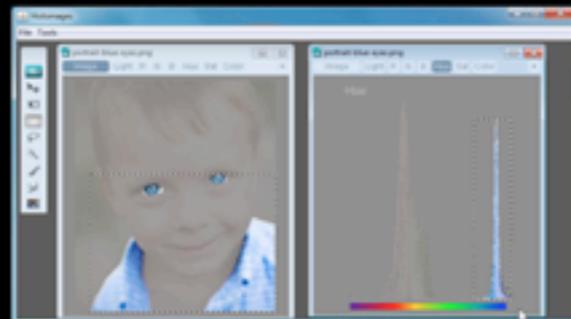
Manipulation d'image

Histomages

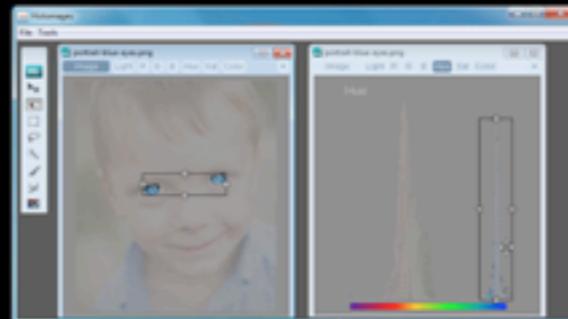
Manipulate image histograms like images



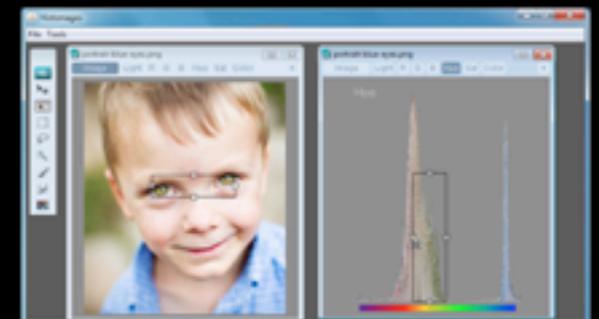
Multi-view image editor
for cross-space selection
and manipulation



Powerful selection using
the same tools
in the image and color spaces



Fully synchronized views
for immediate feedback



Direct color manipulations
through dragging and stretching
in histogram views

[Chevalier et al., UIST 2012] - <https://aviz.fr/histomages/>

Manipulation de contenu

Manipulation d'image



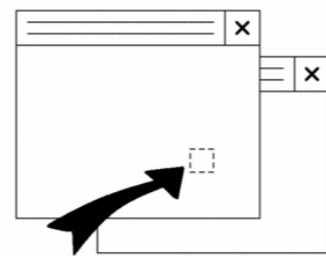
[Chevalier et al., UIST 2012] - <https://aviz.fr/histomages/>
<http://tan.lille.inria.fr/diffamation/?lang=fr>

#3 Rattraper un épisode “raté”

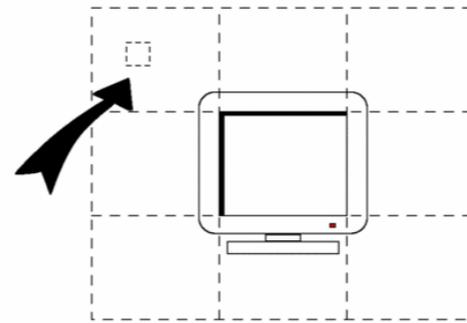
Rattraper un épisode "raté"

Visibilité des pixels

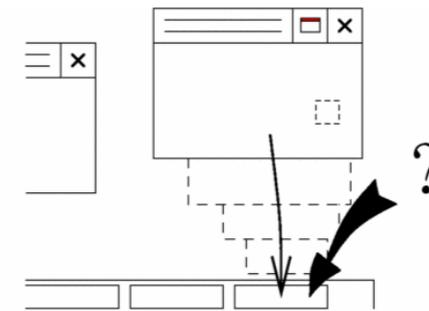
Pas montré



a

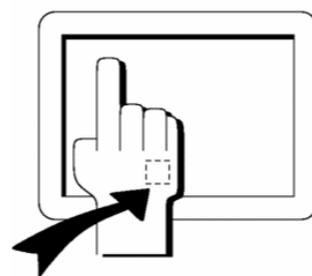


b

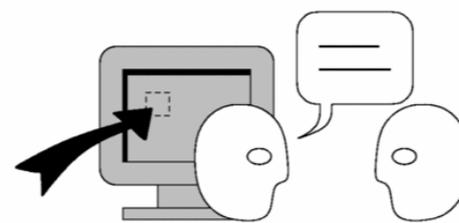


c

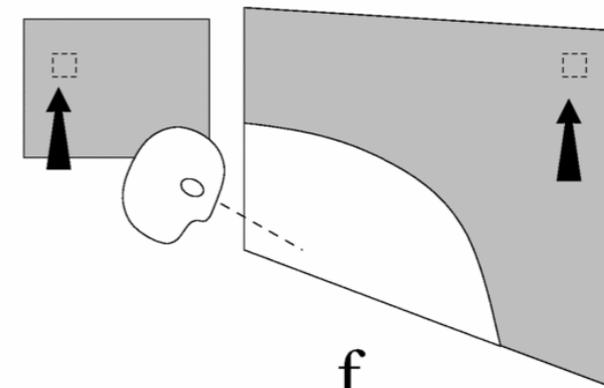
Pas vu



d



e



f

Rattraper un épisode “raté”

Visibilité des pixels

Mnemonic Rendering: An Image-Based Approach for Exposing Hidden Changes in Dynamic Displays

A. Bezerianos, P. Dragicevic, R. Balakrishnan
Dynamic Graphics Project Lab
University of Toronto
www.dgp.toronto.edu

Mnemonic rendering - [Bezerianos et al., UIST 2006]
<https://www.youtube.com/watch?v=Ui31Dm71MhU>

Rattraper un épisode “raté”

Visibilité des pixels

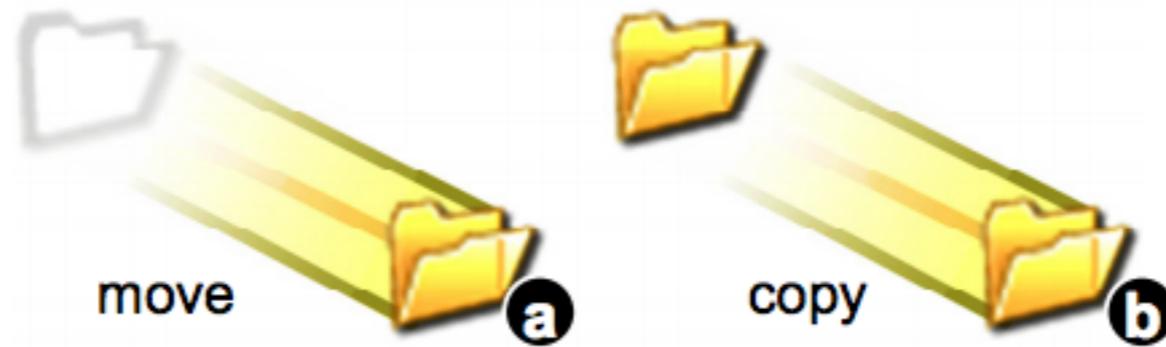
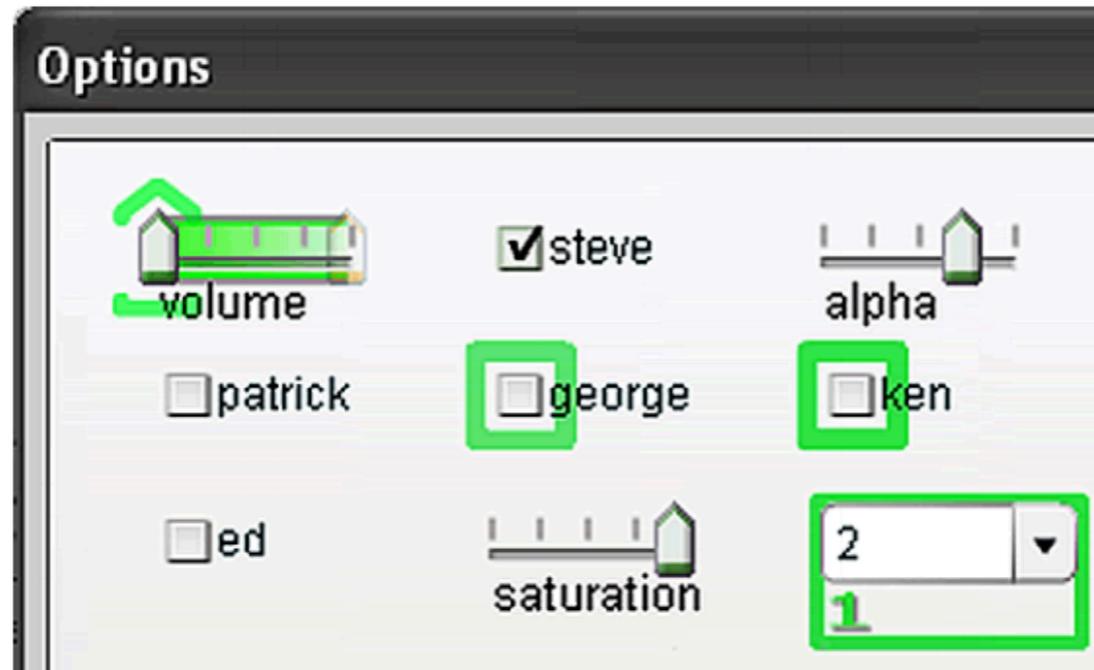
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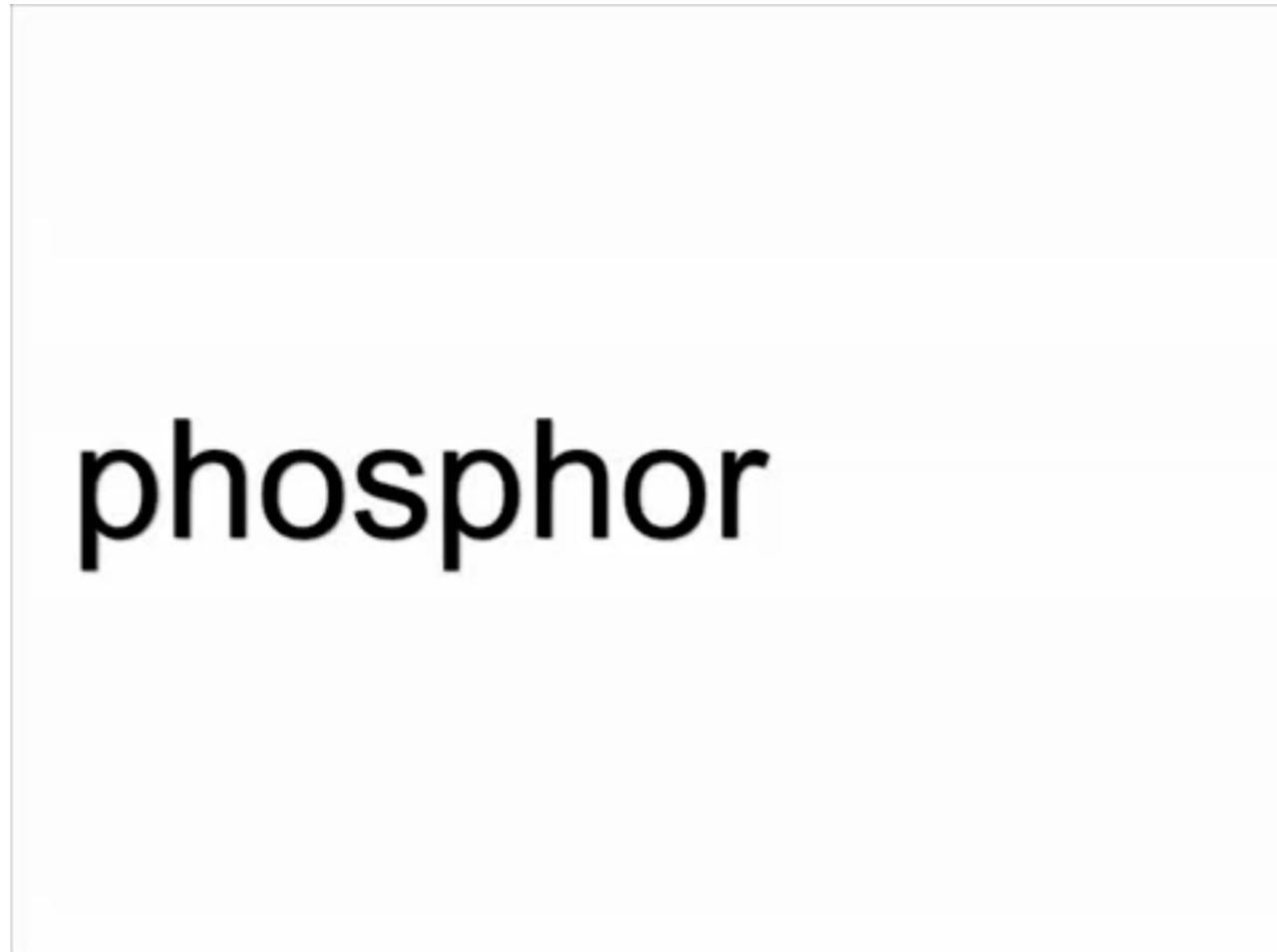
Visibilité des pixels



Phosphor interfaces- [Baudisch et al., UIST 2006]

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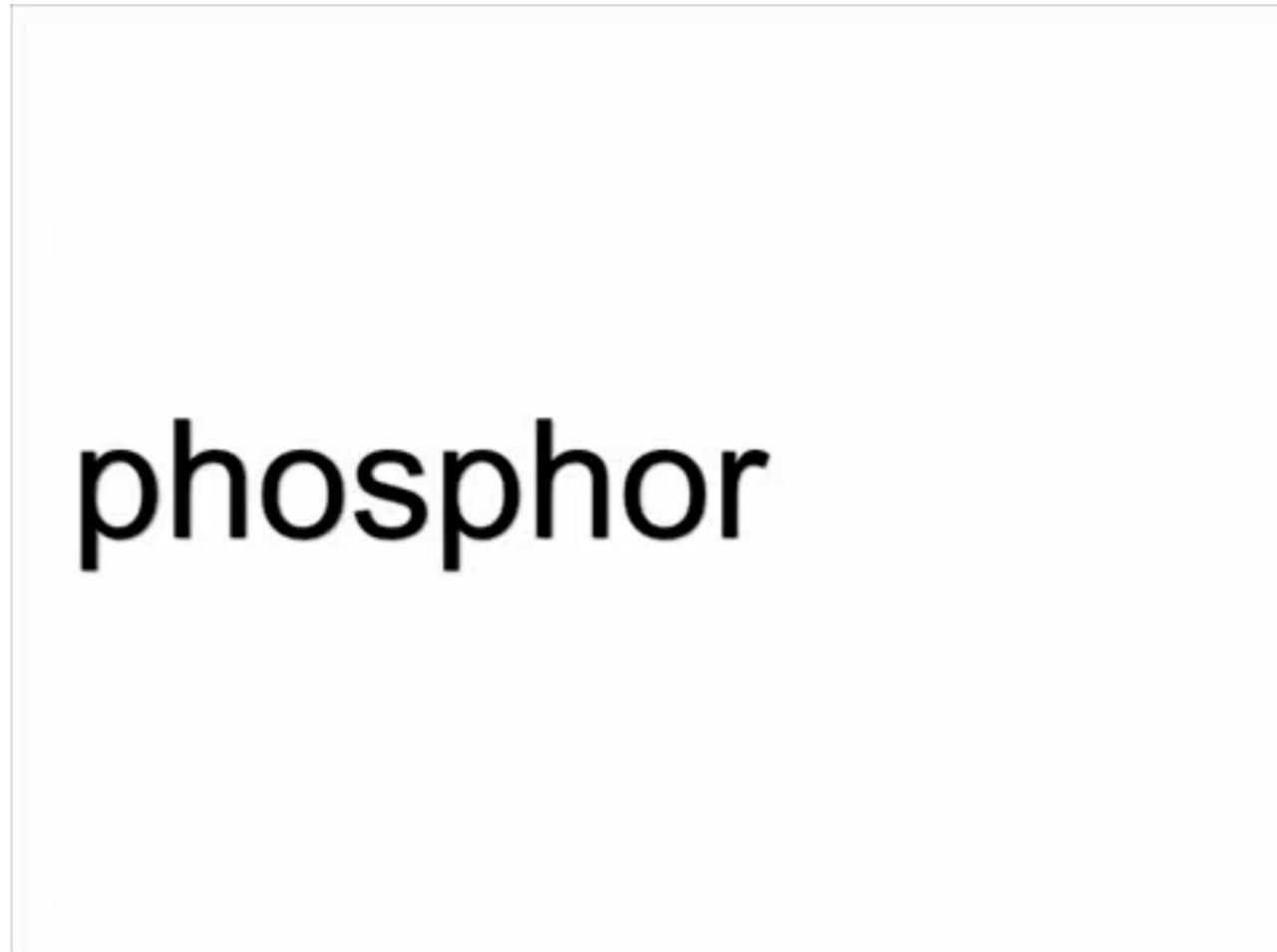
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Pour terminer

Les transitions animées peuvent être utiles

- ▶ Elles aident à comprendre les changements
- ▶ Elles supportent l'exploration rapide
- ▶ Elles sont plaisantes à l'oeil

Quand / Comment les utiliser

- ▶ Autant que vous voulez (quand justifié)
- ▶ Mais gardez-les courtes !

Pensez à la cécité aux changements

- ▶ Votre application ne sera pas toujours visible
- ▶ Aidez l'utilisateur à identifier les changements