

Computational Modeling of Narrative Texts, Films and Games

Course 4 - Plot and Story Grammars

Rémi Ronfard, March 2015

Story/Plot grammars

- Aristotle's Poetics
- Freytag's triangle
- Propp's functions
- Todorov's grammar of the decameron
- Bremond's logic of narrative possibilities
- Thomas Pavel's move grammars
- Lehnert's plot units
- Rumelhart's story grammar
- Screenplay theory
- Blake Snyder's beat sheet

What is a story ?

- Oxford English Dictionary: A narrative (or story) is any fictional or nonfictional report of connected events, presented in a sequence of written or spoken words, and/or in a sequence of (moving) pictures.
- Aristotle: A story (mythos) must have a beginning, a middle, and an end, and the events must causally relate to one another as being either necessary or probable. Stories arouse emotion in the psyche of the audience.
- Russian formalists: The fabula ("Story") is what happened in chronological order. The syuzhet ("Plot") is the sequence of discourse that was sorted out by the (implied) author. That is, the syuzhet consists of picking up the fabula events in non-chronological order; e.g., Fabula= $\langle a_1, a_2, a_3, a_4, a_5, \dots, a_n \rangle$, Syuzhet= $\langle a_5, a_1, a_3 \rangle$.

What is a story ?

Marie-Laure Ryan:

1. Story takes place in a world populated with individuated agents (characters) and objects. (Spatial dimension).
2. This world must undergo not fully predictable changes of state that are caused by non-habitual physical events: either accidents ('happenings') or deliberate actions by intelligent agents. (Temporal dimension).
3. In addition to being linked to physical states by causal relations, the physical events must be associated with mental states and events (goals, plans, emotions). This network of connections gives events coherence, motivation, closure, and intelligibility and turns them into a plot. (Logical, mental and formal dimension)

What is a story ?

- McKee: A story is a series of acts that builds to a climax which brings about absolute and irreversible change.
- Syd Field : a story is a three act structure. In the first act, the main character protagonist experiences a 'plot point' that provides a goal to achieve. In the second act, the character struggles to achieve this goal. The third act depicts the final struggle by the protagonist to finally achieve (or not achieve) his or her goal and the aftermath of this struggle.

What is a story ?

- Todorov: A story is composed of actions performed by characters, as perceived and told by a « narrator ».
- Bremond: the registration of a change or continuation of the status quo ante. A story is a combination of narrative atoms, which are triads of goals, actions and outcomes.
- Hierarchical structure of stories within stories.

Story vs. plot (Forster)

- Story : King dies and queen dies
 - Event follows Events
- Plot : King dies then queen dies of grief
 - Event causes Emotion causes Event ...

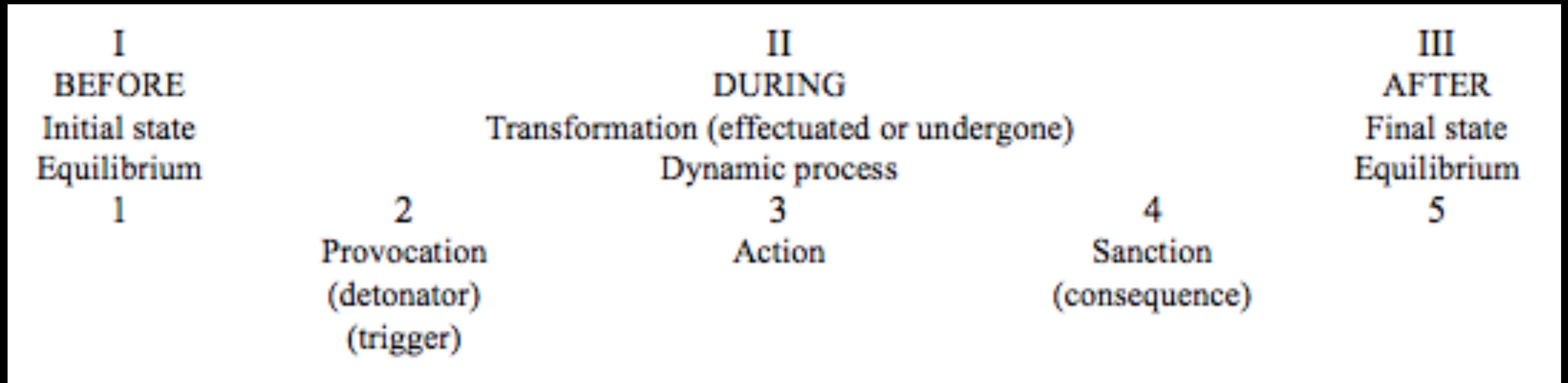
Aristotle's poetics

- Plot (mythos) = sequence of events linked by necessity or probability
- The Odissey
- Common patterns
 - Recognition (ignorance to knowledge)
 - Reversal of fortune (peripeteia)
 - Complication + Turning point + Unraveling

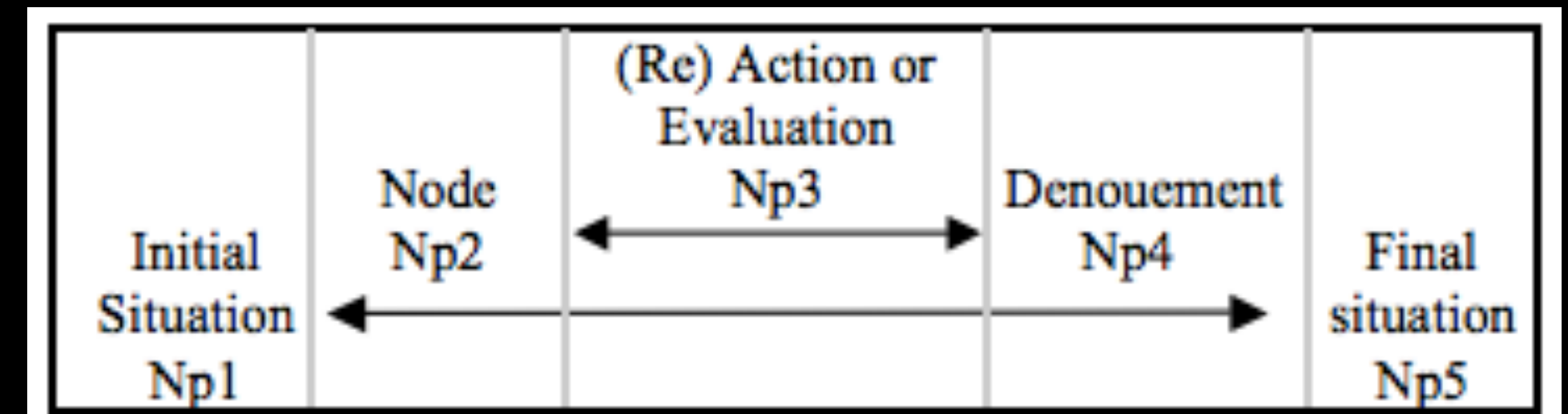
Freytag's triangle

1. Exposition
2. Rising action
3. Climax
4. Falling action
5. Denouement / Catastrophe

Jean-Michel Adam: general narrative sequence



- Moment m1 = BEFORE the process (action is imminent) = Np1
- Moment m2 = BEGINNING of the process (beginning to, undertaking) = Np2
- Moment m3 = DURING the process (continuing to) = Np3
- Moment m4 = END of the process (ceasing) = Np4
- Moment m5 = AFTER the process (recently completed) = Np5



Propp's functions

- I. absentation: a family member absents him/herself from home (beta)
- II. interdiction: an interdiction is addressed to hero (gamma)
- III. violation: interdiction is violated (delta); a paired element
- IV. reconnaissance: villain makes an attempt at reconnaissance (epsilon)
- V. delivery: villain receives information about his victim (zeta); a paired function
- VI. trickery: villain attempts to deceive his victim in order to take possession of him or his belongings (eta) [at this point the villain may assume a disguise]
- VII. complicity: victim submits to deception and thereby unwittingly helps his enemy (theta); subfunction: preliminary misfortune (lambda) wherein villain deliberately causes the difficult situation
- VIII. villainy: villain causes harm or injury to a family member (A); crucial function by means of which the actual movement of the tale is created; the complication is begun by an act of villainy

Propp's functions

- IX. mediation, the connective incident: misfortune or lack is made known; hero is approached with a request or command; he is allowed to go or he is dispatched (B)
- X. beginning counteraction: seeker agrees to or decides upon counteraction (C)
- XI. departure: hero leaves home (arrow/up)
- XII. the first function of the donor: hero is tested, interrogated, attacked, etc., which prepares the way for his/her receiving either a magical agent or helper (D)
- XIII. the hero's reaction: hero reacts to the actions of future donor (E)
- XIV. provision or receipt of a magical agent: hero acquires the use of magical agent (F)
- XV. spatial transference between two kingdoms, guidance: hero is transferred, delivered, or led to the whereabouts of an object of search (G)

Propp's functions

- XVI. struggle: hero and villain join in direct combat (H)
- XVII. branding, marking: hero is branded (J)
- XVIII. victory: villain is defeated (I)
- XIX. liquidation of misfortune or lack: the initial misfortune or lack is liquidated (K); this function, together with villainy (A), constitutes a pair: the narrative reaches its peak here
- XX. return: hero returns (arrow/down)
- XXI. pursuit, chase: hero is pursued (Pr)
- XXII. rescue: rescue of hero from pursuit (Rs)
- XXIII. unrecognized arrival: hero, unrecognized, arrives home, or in another country (o)

Propp's functions

- XXIV. unfounded claims: a false hero presents unfounded claims (L)
- XXV. difficult task: a difficult task is proposed to hero (M); one of the tale's favorite elements
- XXVI. solution: the task is resolved (N)
- XXVII. recognition: hero is recognized (Q); complements function XVII
- XXVIII. exposure: false hero or villain is exposed (Ex)
- XXIX. transfiguration: hero is given a new appearance (T)
- XXX. punishment: villain is punished (U)
- XXXI. wedding: hero is married and ascends the throne (W)

Example: the swan geese

- Once there was a couple who had both a daughter and a son. They left their daughter in charge of her younger brother, but one day she lost track of him and the magic swan geese snatched him away. The daughter chased after him and came upon an oven that offered to tell her if she ate its rye buns; she scorned them, saying she doesn't even eat wheat buns. She also scorned similar offers from an apple tree, and a river of milk.
- She came across a little hut built on a hen's foot, in which she found Baba Yaga with her brother; Baba Yaga set her to spin flax and left. A mouse scurried out and said it would tell her what she needed to know if she gave it porridge; she did, and it told her that Baba Yaga was heating the bath house to steam her, then she would cook her. The mouse took over her spinning, and the girl took her brother and fled.
- Baba Yaga sent the swan geese after her. She begged the river for aid, and it insisted she eat some of it first; she did, and it sheltered her. When she ran on, the swan geese followed again, and the same happened with the apple tree and the oven. Then she reached home safely.

Example: the swan geese

- Absence
- Interdiction
- Violation
- Villainy
- Departure
- Presents refused (x3)
- Guidance
- Pursuit
- Return
- Presents accepted (x3)

Propp's morphology as a grammar of folk tales

FOLKTALE	=	COMPLICATION DONOR COURSE_OF_ACTION CLOSURE
FOLKTALE	=	COMPLICATION DONOR COURSE_OF_ACTION
FOLKTALE	=	COMPLICATION COURSE_OF_ACTION CLOSURE
FOLKTALE	=	COMPLICATION COURSE_OF_ACTION
FOLKTALE	=	↑ DONOR T COMPLICATION DONOR COURSE_OF_ACTION CLOSURE
COMPLICATION	=	TRIGGER
COMPLICATION	=	TRIGGER MEDIATION ↑
COMPLICATION	=	TRIGGER MEDIATION
COMPLICATION	=	TRIGGER M MEDIATION
TRIGGER	=	A
TRIGGER	=	a
MEDIATION	=	C
MEDIATION	=	B C

Propp's morphology as a grammar of folk tales

DONOR	=	F
DONOR	=	F G
DONOR	=	D E
DONOR	=	D E F
DONOR	=	D E F G
DONOR	=	D E G F
COURSE_OF_ACTION	=	TASK
COURSE_OF_ACTION	=	↓ PURSUIT
COURSE_OF_ACTION	=	K ↓ PURSUIT
COURSE_OF_ACTION	=	↓ PURSUIT o
COURSE_OF_ACTION	=	o DONOR K T PURSUIT
COURSE_OF_ACTION	=	CONFRONTATION K ↓
COURSE_OF_ACTION	=	CONFRONTATION K ↓ PURSUIT
COURSE_OF_ACTION	=	K ↓
COURSE_OF_ACTION	=	CONFRONTATION
COURSE_OF_ACTION	=	CONFRONTATION K

Propp's morphology as a grammar of folk tales

PURSUIT	=	Pr Rs
PURSUIT	=	Pr DONOR Rs
CONFRONTATION	=	H I
CONFRONTATION	=	I
TASK	=	M N
CLOSURE	=	W
CLOSURE	=	Q W
CLOSURE	=	Q Ex U W
CLOSURE	=	T W
CLOSURE	=	X U W ↓ X

Rumelhart: story grammars

- Story -> Setting + Episode (Setting ALLOWS Episode)
- Setting -> State
- Episode -> Event + Emotion (Event CAUSES Emotion)
- Event -> Event + Event (Event CAUSES Event)
- Event -> Episode
- Event -> Action

Rumelhart: story grammars

1. Althea was in the playroom.
2. She sat on the balloon.
3. It popped.
4. She was pleased.

Story

Setting ALLOWS Episode

State ALLOWS Episode

1 ALLOWS Episode

1 ALLOWS (Event CAUSES Emotion)

1 ALLOWS ((Event CAUSES Event) CAUSES Emotion)

1 ALLOWS ((Action CAUSES Action) CAUSES Emotion)

1 ALLOWS ((2 CAUSES 3) CAUSES 4)

Althea was in the playroom ALLOWS

((She sat on the balloon CAUSES It popped) CAUSES She was pleased)

BUILD TALE by Correira

- Story -> Setting + Episode
 - Episode -> Episode + Interlude + Episode
 - Episode -> Complication + Episode
 - Episode -> Complication + Resolution
-
- Using macrostructures (Van Dijk)
 - Hard to maintain coherence in the story
 - Add parameters and constraints

Todorov : grammar of the decameron

- Narrative categories : Nouns, adjectives and verbs
- Nouns X,Y for characters in the story
- Adjectives A,B for states (happy/unhappy), properties (good/bad, intelligent/stupid) and status (husband/wife/lover, noble)
- Verbs a,b for actions: disguise, joke, attack, calling for help, traveling, giving and taking, buying and selling, infraction/punishment, etc.

Todorov: Relations

- Emphasis/repetition $Xa + Xa$
- Inversion $Xa + X-a$
- Modification $Xa \rightarrow Xb$
- Desire $X \text{ opt } A$
- Motivation $Xa \rightarrow P$
- Result $P \rightarrow Xa$
- Punishment $Xa \rightarrow YbX$
- Hypothesis $(XA \rightarrow XB)_{\text{cond}} + XA \rightarrow X$

Todorov: modes

- Assertive
- Obligative (law, punishment)
- Optative (desire)
 - $X \text{ opt } a, X \text{ opt } Y \text{ opt } a$
- Vision (belief)
 - $X (Ya)$
- Conditional (test, promise)
 - $X \text{ cond } (Yb \rightarrow Xc)$
- Predictive (supposition)
 - $X \text{ pred } (Yb \rightarrow Yc)$

Todorov: grammar of the decameron stories

- Two obligatory relations : Desire and modification
- Any number of auxiliary relations
- Combination of story lines
 - sequential $A + B$
 - embedded $A + B + A$
 - alternating $A + B + A + B$

Bremond : logic of narrative possibilities

- Narrative atom: goal + action + outcome
- Amelioration or degradation
- Interactions: aggression, assistance, intervention of ally, negotiation, elimination of the adversary, retribution
- Combinations: end-to-end or enclave or coupling

Bremond: logic of narrative possibilities

Virtuality →
(e.g., goal to be
obtained)

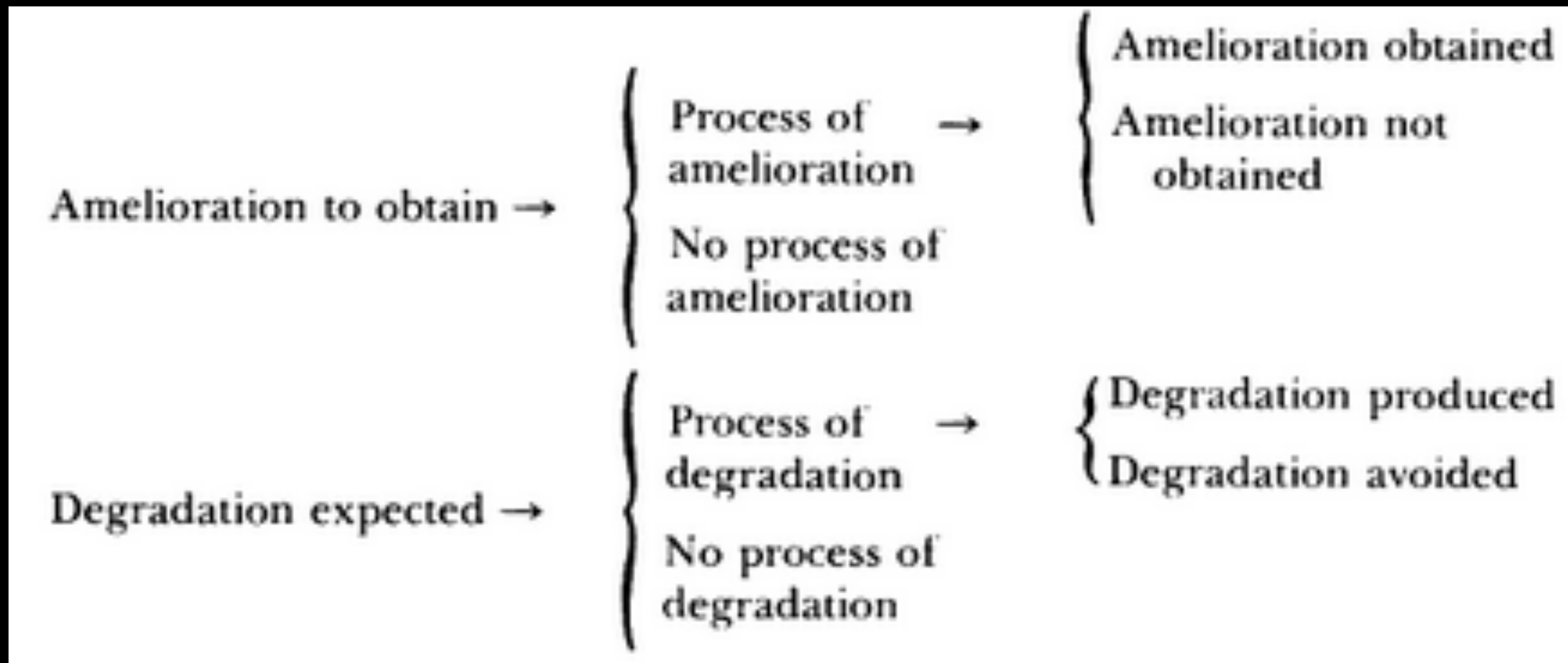
Actualization →
(e.g., act necessary to
attain goal)

Absence of actualization
(e.g., inertia, impediment
to action)

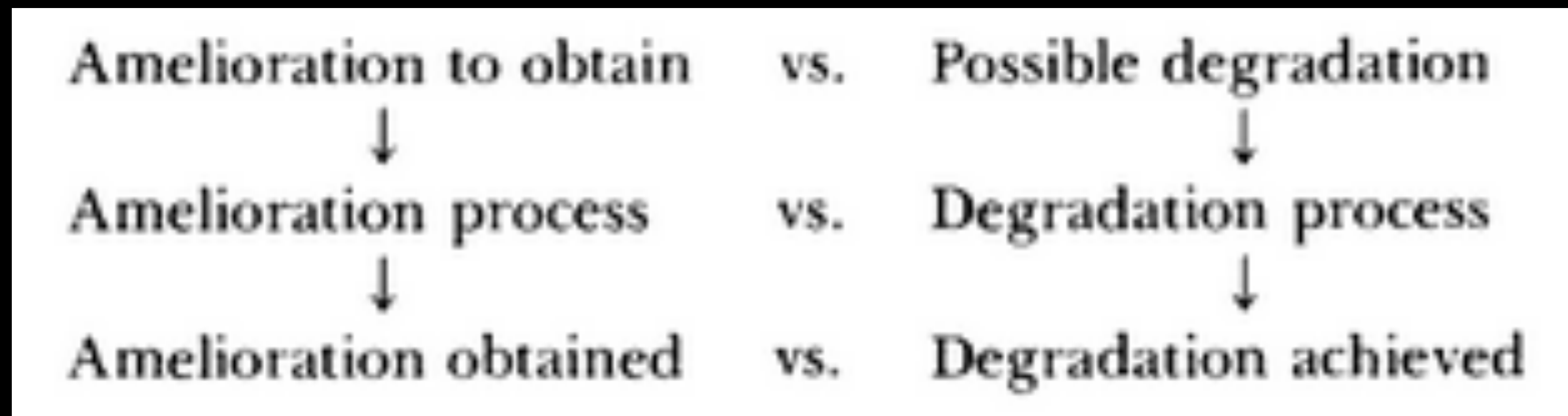
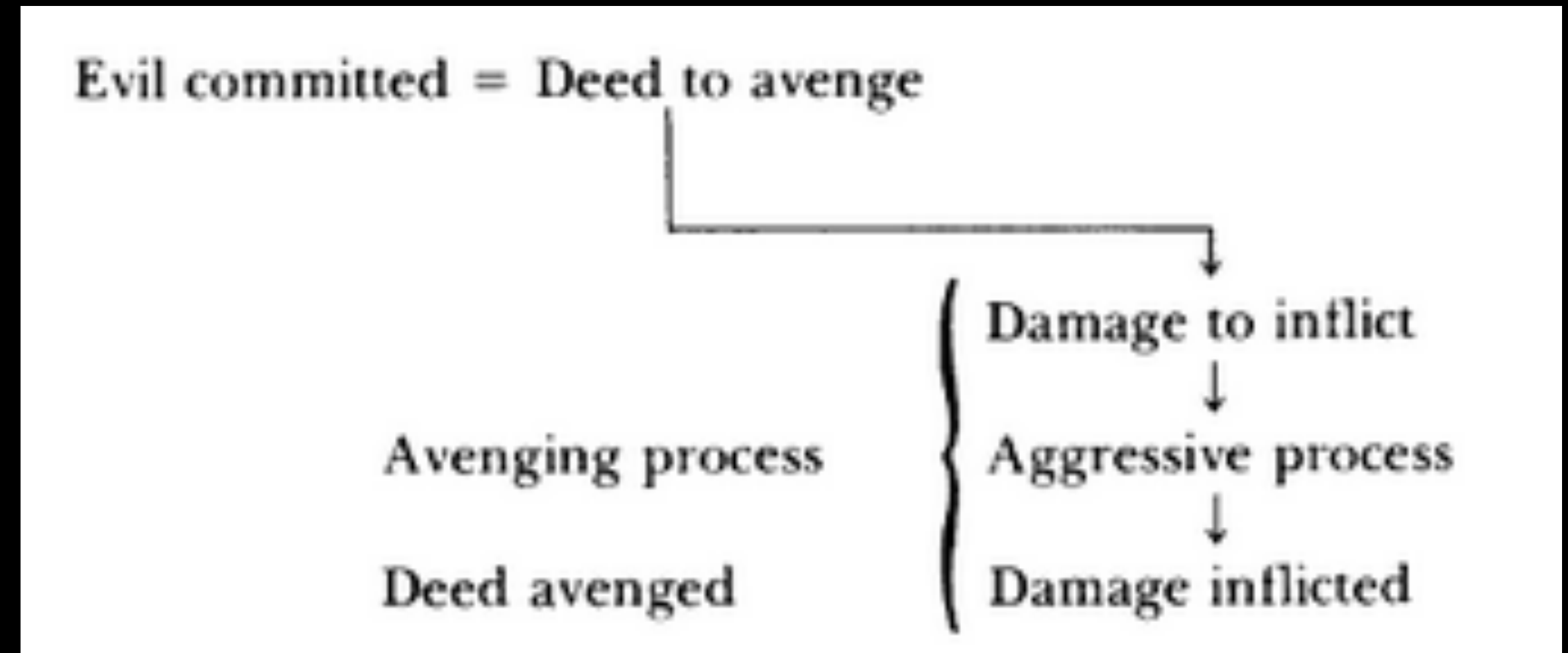
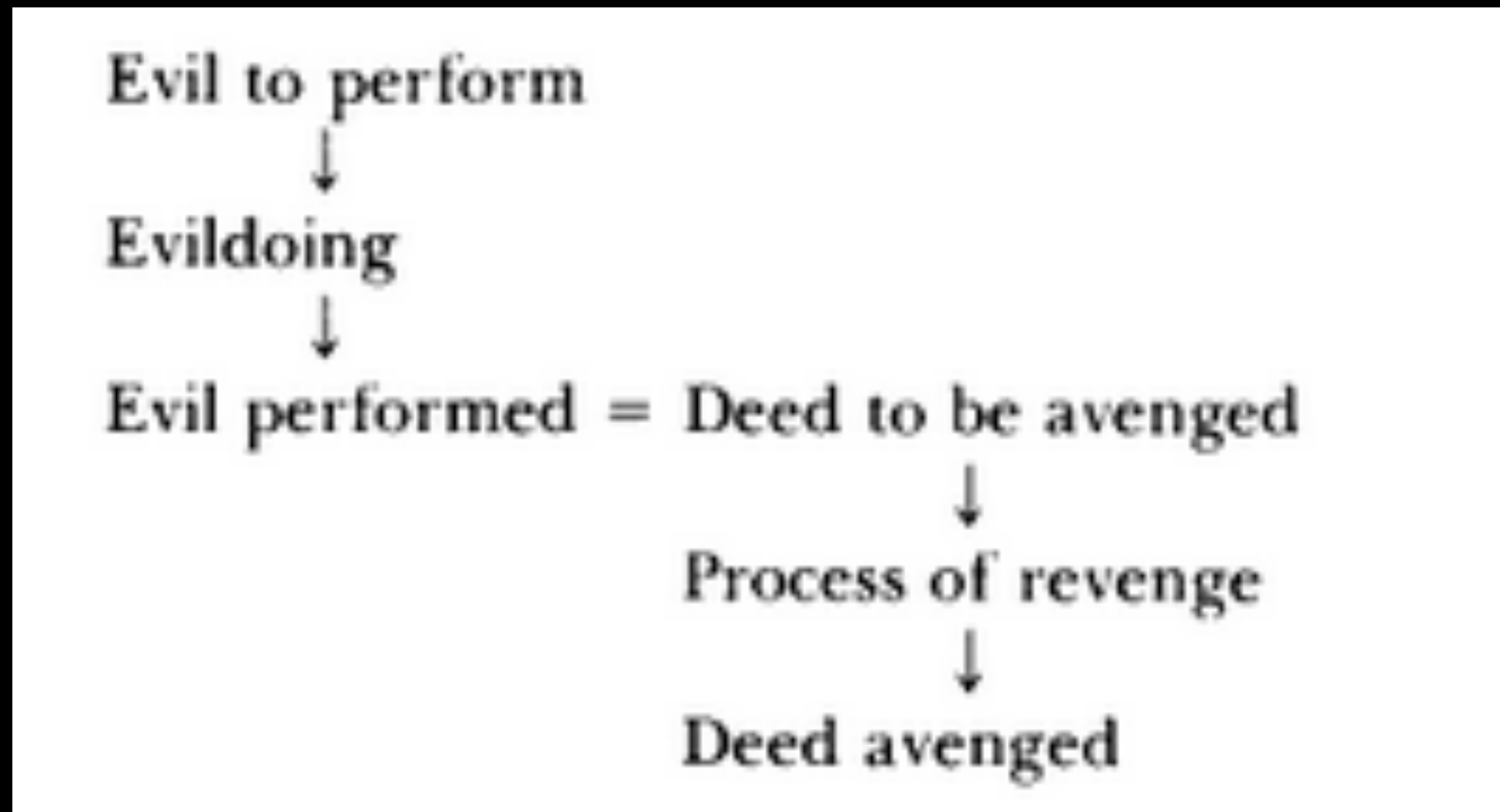
Goal attained
(e.g., act successful)

Goal not attained
(e.g., act fails)

Bremond: logic of narrative possibilities



Bremond: logic of narrative possibilities



Thomas Pavel: Move grammars

- Narrative sequence: Problem + Auxiliary Event + Solution
- Organized into a tree
- Grammar of the fabula, not discourse !

Lehnert: Plot units

+ (Positive Event) Events that please
- (Negative Event) Events that displease
M (Mental State) Mental states (w/ neutral affect)

- Motivation, actualization, termination, equivalence

	M M	M +	M -	+ M	- M	+ -	- +	+ +	- -
m	*			*	*				
a		*	*						
t	*					*	*	*	*
e	*					*	*	*	*

Lehnert: Plot units

MOTIVATION	SUCCESS	FAILURE
$\begin{matrix} M \\ M \end{matrix} \curvearrowright m$	$\begin{matrix} M \\ + \end{matrix} \curvearrowright a$	$\begin{matrix} M \\ - \end{matrix} \curvearrowright a$
CHANGE OF MIND	LOSS	MIXED BLESSING
$\begin{matrix} M \\ M \end{matrix} \curvearrowright t$	$\begin{matrix} + \\ - \end{matrix} \curvearrowright t$	$\begin{matrix} + \\ - \end{matrix} \curvearrowright e$
PERSEVERENCE	RESOLUTION	HIDDEN BLESSING
$\begin{matrix} M \\ M \end{matrix} \curvearrowright e$	$\begin{matrix} - \\ + \end{matrix} \curvearrowright t$	$\begin{matrix} - \\ + \end{matrix} \curvearrowright e$
ENABLEMENT	NEG. TRADE-OFF	COMPLEX POS. EVENT
$\begin{matrix} + \\ M \end{matrix} \curvearrowright m$	$\begin{matrix} - \\ - \end{matrix} \curvearrowright t$	$\begin{matrix} + \\ + \end{matrix} \curvearrowright e$
PROBLEM	POS. TRADE-OFF	COMPLEX NEG. EVENT
$\begin{matrix} - \\ M \end{matrix} \curvearrowright m$	$\begin{matrix} + \\ + \end{matrix} \curvearrowright t$	$\begin{matrix} - \\ - \end{matrix} \curvearrowright e$

Lehnert: Simple plot units

PROBLEM:

You get fired and need a job.

You bounce a check and need to deposit funds.

Your dog dies and you long for companionship.

SUCCESS:

You ask for a raise and you get it.

You fix a flat tire.

You need a car so you steal one.

FAILURE:

Your proposal of marriage is declined.

You can't find your wallet.

You can't get a bank loan.

Lehnert: Simple plot units

RESOLUTION:

**Your broken radio starts working again.
They catch the thief who has your wallet.
You fix a flat tire after a blow out.**

LOSS:

**Your big income tax refund is a mistake.
The woman you love leaves you.
The car you just bought is totaled.**

POS. TRADE-OFF:

**You buy a new Toyota and then inherit a Porsche.
You take a day off and then realize it's a holiday.
You get a raise and then win the Irish Sweepstakes.**

Lehnert: Simple plot units

- NEG. TRADE-OFF:** You get fired so you don't have to take a lousy job assignment.
Your car blows up so you don't have to make the next insurance payment.
You lose the election so you don't have to placate demanding voters.
- PERSEVERENCE:** You want to get married (again).
You reapply to Yale after being rejected.
You want to ski again after a bad skiing accident.
- HIDDEN BLESSING:** You get audited and they owe you.
You sprain an ankle and win damages.
Your mother dies and you inherit a million.

Lehnert: Simple plot units

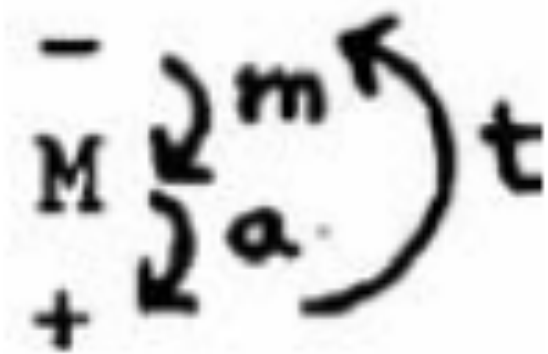
- MIXED BLESSING:** You buy a car and it turns out to be a lemon.
You fall in love and become insanely jealous.
Your book is reviewed but they hate it.
- CHANGE OF MIND:** You apply to Harvard and then to Yale.
You want to buy a car but decide against it.
You want to see a movie until a friend pans it.
- MOTIVATION:** You need advice so you decide to ask a friend.
You want to buy a car so you apply for a loan.
You want to reach a client so you call him.

Lehnert: Simple plot units

ENABLEMENT:	You decide to celebrate after a raise. You receive a book and decide to read it. You get a loan and have to pay it back.
COMPLEX POS:	A gift is indicative of close friendship. Your raise signifies recognition. You win respect by getting a rolls royce.
COMPLEX NEG:	You lose \$100 when your wallet is stolen. You break an arm in a car accident. Your house burns down and you aren't covered.

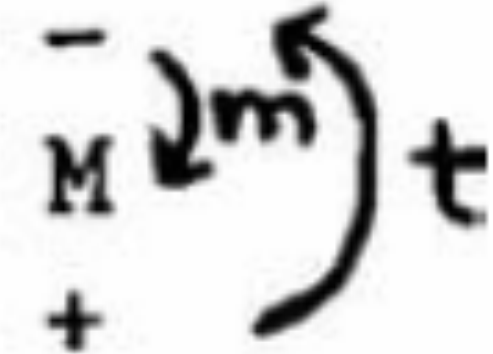
Lehnert: Complex plot units

**INTENTIONAL
PROBLEM RESOLUTION**



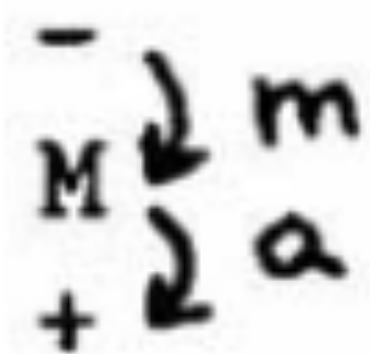
= problem
& success
& resolution

**FORTUITOUS
PROBLEM RESOLUTION**



= problem
& resolution

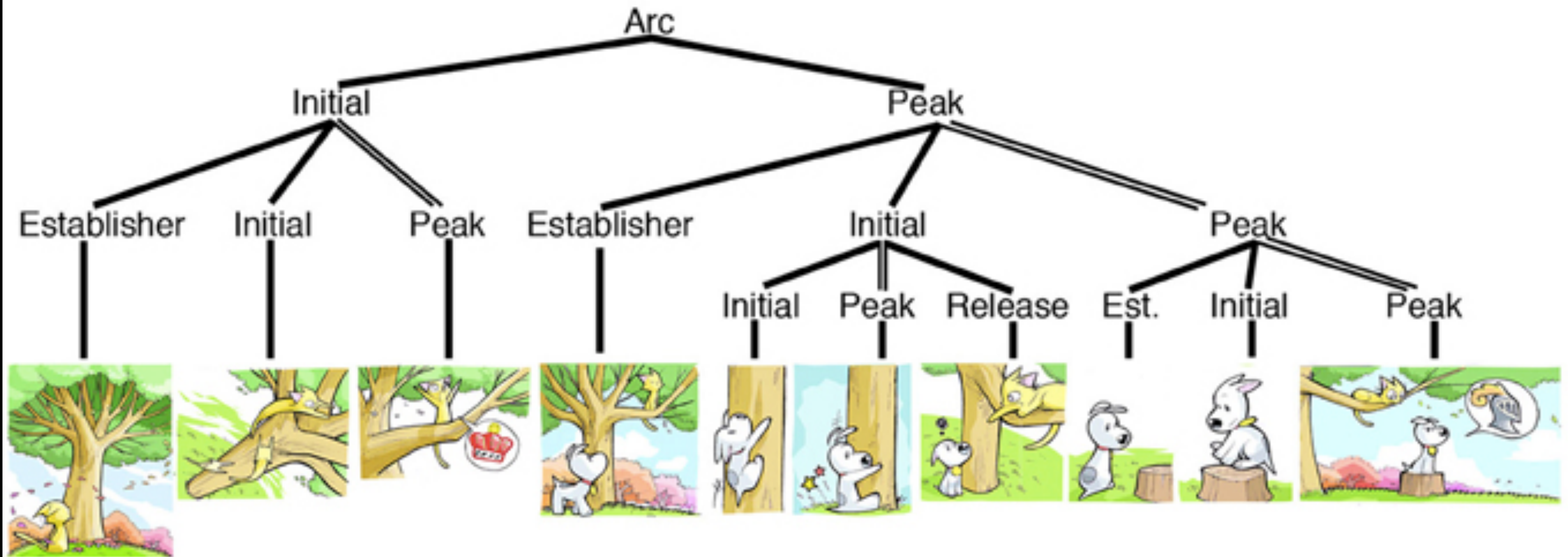
**SUCCESS BORN
OF ADVERSITY**



= problem
& success

Cohn's grammar of comics

A Narrative Structure: Original Sequence



Cohn's grammar of comics

B Constituency test using deletion

(i) [[Est. [X] [Est. Initial Peak]]



(ii) [[Est. [Initial [X] Initial Peak]]



Cohn's grammar of comics

C Constituency test using movement

(i) [[Est. [Est. Initial Peak] [Initial Peak Release]]



(ii) [[Est. [Initial [Est. Initial] [Peak Release] Peak]]]



Screenplay theory

- A theory of filmic discourse, not fabula
- Dramatic beats are the smallest units of story change (McKee)
- Beats and acts are measured in script pages
- One script page = one minute in film

Screenplay theory

- Syd Field : 3 acts
- Robert McKee : 7 acts
- Krystin Thomson : 9 acts
- Blake Snyder : 3 acts and 15 beats

Story and discourse in film : the Blake Snyder beat sheet

1. Opening image (1)
2. Theme stated (5)
3. Set-up (10)
4. Catalyst (12)
5. Debate (12-25)
6. Break into two (25)
7. B story (30)
8. Fun and games (30-55)
9. Midpoint (55)
10. Bad guys close in (55-75)
11. All is lost (75)
12. Dark night of the soul (75-85)
13. Break into three (85)
14. Finale (85-110)
15. Final image (110)

Story patterns and genres

1. Monster in the house
2. Golden fleece
3. Out of the bottle
4. Dude with a problem
5. Rites of passage
6. Buddy love
7. Whydunnit
8. Fool triumphant
9. Institutionalized
10. Superhero

Monster in the house stories

1. A monster
2. A house
3. A sin

1. Alien
2. Fatal attraction
3. Scream

Golden fleece stories

1. A road
2. A team
3. A prize

1. Wizard of Oz
2. Saving private Ryan
3. Ocean's eleven

Out of the bottle stories

1. A wish
2. A spell
3. A lesson

1. Freaky Friday
2. What women want
3. Eternal sunshine of the spotless mind

Dude with a problem stories

1. An innocent hero
2. A sudden event
3. A life or death battle

1. Three days of the condor
2. Deep impact
3. Open water

Rites of passage stories

1. A life problem
2. A wrong way
3. An acceptance of a hard truth

1. Ten
2. Kramer vs. Kramer
3. Napoleon dynamite

Buddy love stories

1. An incomplete hero
2. A counterpart
3. A complication

1. Letal weapon
2. When Harry met Sally
3. Titanic

Whydunnit stories

1. A detective
2. A secret
3. A dark turn

1. All the president's men
2. Blade runner
3. Fargo

Fool triumphant stories

1. A fool
2. An establishment
3. A transmutation

1. Being there
2. Legally blonde
3. Forrest gump

Institutionalized stories

1. A group

2. A choice

3. A sacrifice

6. MASH

7. Do the right thing

8. Crash

Superhero stories

1. A special power
2. An opponent
3. A curse

1. The lion king
2. The matrix
3. Gladiator

Computational modeling of narrative

