Modeling Incongruity Conflict and Change for Novel Ideation

Coming Good & Breaking Bad

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This work forms part of the WHIM project.

*see also EC coordination action: PROSECCO: PROMoting the Scientific Exploration of Computational Creativity*
I’ve only been a bug since 8am ...

... and I’m already very annoying!

“As Gregor Samsa awoke one morning from uneasy dreams, he found himself transformed in his bed into a monstrous vermin.” So starts Franz Kafka’s novella of transformation, titled Metamorphosis, in which the author explores issues of otherness and guilt by exploiting a character’s horrific (if unexplained) change into an insect. The most psychologically compelling stories are stories of change, in which characters learn and evolve as they fulfill their dreams or become what they most despise. Character-driven stories must do more than maneuver their protagonists as game pieces on a board, but move them along narrative arcs that transform their inner qualities in ways that generate interest and tension.
Change happens in stories – good stories at least – for a reason. It is typically an external expression of an internal conflict. Consider **Bruce Banner**’s transformation into the **Hulk**: Banner is repressed, physically puny, and cerebral: the Hulk, an expression of his inner tumult, is incandescent with rage, physically massive, a primal savage rather than an effect intellectual. **Peter Parker** is a science nerd, but his physical transformation allows him to become a wise-cracking joker. **Superman** hides in plain sight by adopting the disguise of a slouched, bumbling reporter. Just as metaphors can unite antagonistic concepts, transformations in stories revel in opposition and reversal. Machines can use metaphor to achieve compelling transformations.
I used to be a “people person”...

... now I am just an animal lover!

Authors from Ovid to Kafka demonstrate the value of transformation – physical, spiritual and metaphorical – as a tool of character development, just as storytellers from Homer to Kubrick demonstrate the value of journeys as support-structures for narratives of becoming and change. Even stories that are primarily action-centric can, many times, be succinctly summarized by listing key character transformations. Consider *Gladiator*, an Oscar-winning film from 2000. The main villain of that piece, *Emperor Commodus*, summarizes the whole plot with three potent transformations. The 3rd transformation is implicit, for the gladiator *Maximus* has ultimately transformed himself into a potential leader of Rome itself.
Many Stories are driven by Change and Conflict

1. The **general** who became a slave ...
2. ... the **slave** who became a gladiator ...
3. ... the **gladiator** who defied an **emperor**!
Are you not entertained?

Good Stories employ Incongruity and Surprise
Successful Incongruity is initially jarring – shocking even – yet ultimately resolvable.
Incongruity is meaningfully created from imperfect blends, of characters or scenarios.
Hang on a minute ... Am I your father? You’re a bit short to be my son!

Well, this is not how I was expecting this conversation to go.

Denouements can resolve incongruities in surprising ways, e.g. by blending story roles, actions, settings.
Blends may only be partly visible, or partially realized.

Blends resolve and dissolve throughout a story.

You did it ... You finally DID it!
From caring husband & teacher to ruthless drug-baron: Walter White is an unknowable, unstable blend of categories.

Kafka presents his driving transformation as a fait accompli in the first line of his story, while in Ovid’s Metamorphoses, characters are transformed by gods into trees or animals with magical immediacy. Most narrative transformations occur gradually, however, with a story charting the course of a character’s development from a start-state $S$ to target-state $T$. The television drama *Breaking Bad* is an exemplary model of the slow-burn transformation.
An interesting character has *multiple facets* which reveal themselves in the course of a story.

The gradual *unfolding* of a character is the *running of an unstable blend*.
To understand how people & things change over time, we need a rich property-level & behaviour-level model of world concepts.

For we want to deconstruct & pull our concepts apart, to reassemble them in new ways that create interesting contrasts.
Linguistic constructs like the simile frame “as ADJ as a NOUN” allow us to harvest knowledge of stereotypical properties from the Web. These are from the Google n-grams.
To understand dramatic developments in a story arc, we must understand which states are good, and which bad.
A stereotypical concept is more than just a bag of salient features.

To appreciate the degree to which the features of a stereotype relate to each other, we look to how they are reinforce each other in a simile with multiple grounds, like “as hot and humid as a jungle”.

In general, similes with the double-ground form $X$ is “as $P_1$ and $P_2$ as a $Y$” attest to the relationship between $P_1$ and $P_2$. The more often that $P_1$ and $P_2$ support each other in an attested simile, the more likely that one will evoke the other in a descriptive context.
So learn how **Stereotypical Properties** Suggest and Imply Together

<table>
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<th>humid</th>
<th>fiery</th>
<th>dry</th>
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Adjacency matrix of *mutually-reinforcing* properties acquired from WWW

Double-anchored query "**as * and * as**" to acquire associations
Any given property (e.g. cunning) will be highly connected to related properties.
Obviously positive words in blue

Obviously negative words in red
For 99.6% of positive exemplars (1309 of 1314),

\[ \text{pos}(x) > \text{neg}(x) \]

\[
\text{pos}(x) = \frac{|N^+(X)|}{|N^+(X) \cup N^-(X)|}
\]
For 98.1% of negative exemplars (1359 of 1385), \( \text{neg}(x) > \text{pos}(x) \)

\[
\text{neg}(x) = \frac{|N^-(X)|}{|N^+(X) \cup N^-(X)|}
\]
So can we now tell good states from bad?

Can we discern happy endings from sad ones?
Stereotypical Baby properties (163 in all)

- innocent
- sniveling
- adorable
- whining
- lovable
- warm
- drooling
cute
- peaceful
- sobbing
- angelic
- bawling
- mewling
- widespread
- weak
- screaming
- cranky
- indulged
- whimpering
- soft
- wailing
delicate
- heartwarming
+Baby  e.g. “She’s my baby”

innocent  adorable  lovable
peaceful  soft  warm  heartwarming
gentle  delicate

-Baby  e.g. “He’s such a baby”

mewling  drooling  bawling
snivel  sobbing  indulged
whining  screaming  cranky  weak
whimpering  wailing
Average P/R/F1 scores for the affective retrieval of positive and negative properties from 6,230 stereotypes

<table>
<thead>
<tr>
<th></th>
<th>Macro Average (6230 stereotypes)</th>
<th>Positive properties</th>
<th>Negative properties</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Precision</strong></td>
<td>.962</td>
<td>.98</td>
<td></td>
</tr>
<tr>
<td><strong>Recall</strong></td>
<td>.975</td>
<td>.958</td>
<td></td>
</tr>
<tr>
<td><strong>F-Score</strong></td>
<td>.968</td>
<td>.968</td>
<td></td>
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</tbody>
</table>

Veale & Li (2012)

Avg. 6.51 properties per stereotype
We can use metaphors to understand how affective qualities align and change, so one concept can virtually become another. Creative metaphors are commodities that computers can generate at Web Scale via CC Web Services!

Check out: Afflatus.UCD.ie
Metaphor Magnet suggests metaphors on demand for given topics or topic pairs. It finds conventional metaphors in corpora and elaborates them via rich stereotypes.
How I feel now

I often feel alarmed and shocked by crime and its troubling accusations.

I feel damaged and scarred by crime and its inconvenient inconveniences.

I quite often feel appalled and depressed by offensive crime and its disgusting immorality.

I feel frightened by crime and its troubling accusations. Don't they confuse you?

I often feel disgusted by crime and its dreadful punishments.

I feel victimized by crime and its harsh penalties. Do they harm you?

That said, do crime and its provocative accusations intrigue and excite you?

Nevertheless, I sometimes feel horrified and sickened by crime and its alarming suspicions.

Most Common Feelings

chilled_by, alarmed_by, sicken_by,

am_suffering_from, incapacitated_by, attracted_by,

harmed_by, menaced_by, frightened_by, cursed_by,

aggravated_by, polluted_by, damaged_by, disappointed_by,

appalled_by, terrified_by, threatened_by, intrigued_by,

threatened_by, limited_by, am_recovering_from,

endangered_by, interested_by, punished_by, restricted_by,

repulsed_by, invaded_by, crushed_by, harassed_by, demeaned_by,

puzzled_by, unsettled_by, disturbed_by, wounded_by,

pained_by, assaulted_by, disgraced_by, daunted_by,

concerned_about, distressed_by, surprised_by,

demoralized_by, captivated_by, perplexed_by, bored_by, concerned_with,

invaded_by, charmed_by, persecuted_by, horrified_by,

oppressed_by, attacked_by, coerced_by, disgusted_by,

challenged_by, saddened_by, attacked_by, thrilled_by,

frustrated_by, poisoned_by, impressed_by, discouraged_by,

robbed_by, enchanted_by, liberated_by, insulted_by, paralyzed_by, amazed_by,

depressed_by, comforted_by, gripped_by, exhausted_by,

abused_by, overwhelmed_by, damaged_by,

troubled_by, transformed_by, forced_by, contaminated_by, entertained_by,

bullied_by, stressed_by, threatened_with, mesmerized_by, revolted_by,

injured_by, burned_by, repressed_by, confused_by, disabled_by,
These feelings and associations can be bundled into a complex form such as a poem.

No Drug Is More Reportedly Illegal

My crime is a committed drug

To patients of undetected depression are crimes prescribed

No attack is more depressingly grim, or threatens more reportedly

Disgust me with the horrid plague of your drug

Let your planned prohibition reward me

Did ever a doctor prescribe a more soothingly hypnotic drug?

You soothe me so hypnotically, like an addictive drug

Is any drug more harmfully addictive than this crime?

See how you soothe me with your hypnotic intoxication

Discontinued drugs and valid vaccines require very similar efficacies

If you were a pampered celebrity would you want to be worshipped by this fan of abused drugs?

O Crime, you attract me with your reported appeal

Re-compose this poem
We can use the Google Web n-grams to appreciate which concepts are best imagined as the **start state** of a character arc, and which are better suited to being the **end state** of a transformation.

<table>
<thead>
<tr>
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<td>adults</td>
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</table>
The goal is to produce a character arc that is plausible yet interesting – that is, jarring for the right reasons (loss of wealth, gain in skill, rapid increase in power) and not for the wrong ones (decreasing in age, changing in gender, etc.)
So what if a millionaire ... ... became a pauper?

Property-level transformations:

dashing → drab  happy → miserable  rich → poor  rich → skint
ostentatious → unpretentious  pampered → poor
privileged → destitute  privileged → poor  rich → broke
rich → desperate  rich → destitute  rich → miserable
spoiled → poor  wealthy → broke  wealthy → destitute
wealthy → poor

A Lexical Database of Antonyms (e.g. WordNet) allows us to align the contrasting properties of two stereotypical representations.
Millionaire maddened by mansions, walks into workhouses
Millionaire rejects richness, hungers for hopelessness
Millionaire goes from being apparently dashing to increasingly drab
Millionaire's fake happiness masked true hardship
Millionaire goes from living in mansions to living in shacks and slums
Millionaire goes from living in ornate and luxurious mansions to living in wretched and Spartan slums
Millionaire goes from living in magnificent and swanky mansions to living in miserable and wretched slums
Millionaire goes from ostentatious to unpretentious
Millionaire's private pampering masked by outer poverty
Millionaire's artificial privilege masked genuine deprivation
Millionaire's public wealth masked pervasive poverty
Millionaire's false wealth masked genuine deprivation
I’m no angel, but I’m a devil for alliteration.

Nun chucks chastity, wallows in wickedness
Nun nagged by nunneries, bounds into brothels
Nun chucks crucifixes, loves latex
Nun forsakes fidelity, veers toward vices
Nun hates habits, goes gaga for garters
Nun moans about mother superiors, poached by pimps
Nun skips out of spectacles, crazy for corsets
Nun vocal about veils, flies into fishnets
Nun vents about virginity, wallows in wickedness
Nun whines about wimples, grabs garters
Nun goes from being managed by abbesses and mother-superiors to being controlled by pimps
Nun goes from carrying rosary beads to carrying infections
Nun's forced chastity cannot hide wild hedonism
Nun's forced chastity cannot hide free grime
Nun's imposed faith masked secret disloyalty
Nun's public morality masked inward sin
Nun goes from practicing chastity and fidelity to vices
Nun's public respect masked private immorality
Nun goes from living in cloisters and convents to brothels and bawdy houses
A twitterbot using the Metaphor Magnet Web-service to tweet a new hard-boiled metaphor every hour!

Does this pair below remind you of Richard Dawkins? Or is it just me?

What is a saint but a modest idol? What is an idol but a vain saint? Which one are you? #SaintOrIdol?

Scientist. noun. A radical who would rather launch angry projects than angry revolts. #ScientistOrRadical
Causal chaining allows a system to blend the norms of two concepts with differing affect profiles to achieve a jarring – even profound – union. Do employers become our censors?

MetaphorIsMyBusiness
@MetaphorMagnet

Censors limit freedoms. Employers operate the workplaces that impose the rules that compete with freedom. Who is worse? #Employer=#Censor

MetaphorIsMyBusiness
@MetaphorMagnet

Comedians break taboos. Bandits embrace the criminality that undermines the societies that enforce taboos. Who is better? #BanditOrComedian

OK, there is a great deal of sophistry here. All of the why’s and how’s have been taken out and a skeletal causal structure remains. It’s for you as a reader to add flesh to the skeletons to reach your own conclusions.
What actions must a character perform to realize a transformation? Categories have *entry actions* and *exit actions*: the former bring you into a category, the latter take you out of a category.

We have to line up these actions in the right order to obtain a plausible *fabula*.
I enjoy engineering conflict and pointing out areas where conflict might arise. That’s what a story-teller does: create and resolve conflict!

@war_profiteer says war is a delightful profit
@war_wimp says it is a boring failure
War=Profit War=Failure

@life_witness says life is a straightforward truth
@life_sucker says it is a complicated fraud
Life=Truth Life=Fraud

To some obituarists, life is an enjoyable entertainment. To others, it is a gruesome conflict. #Life=Entertainment #Life=Conflict

http://Afflatus.UCD.ie
Web Comics That Transform Our Understanding of Computers and Creativity

For more comix on creativity:  RobotComix.com