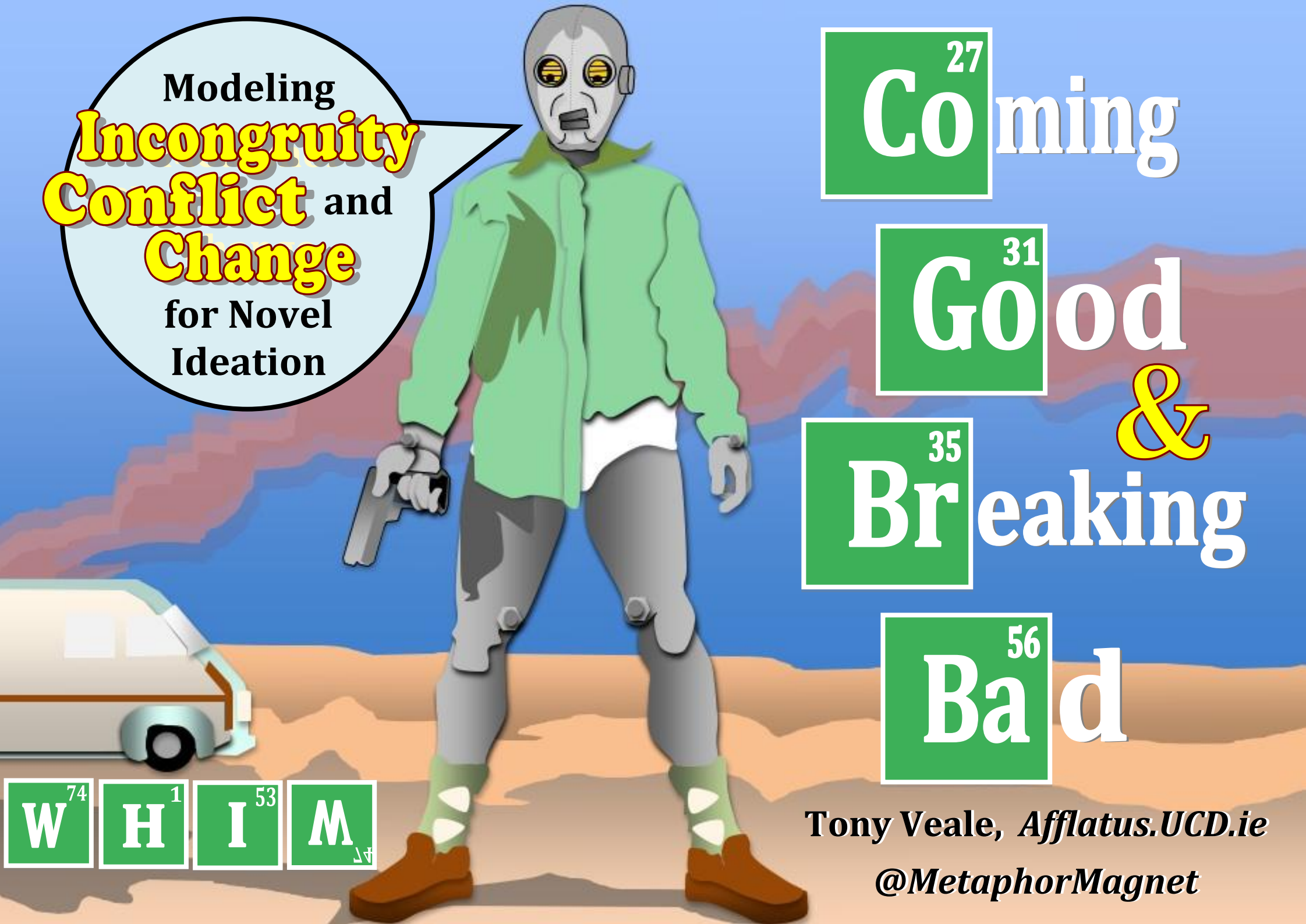
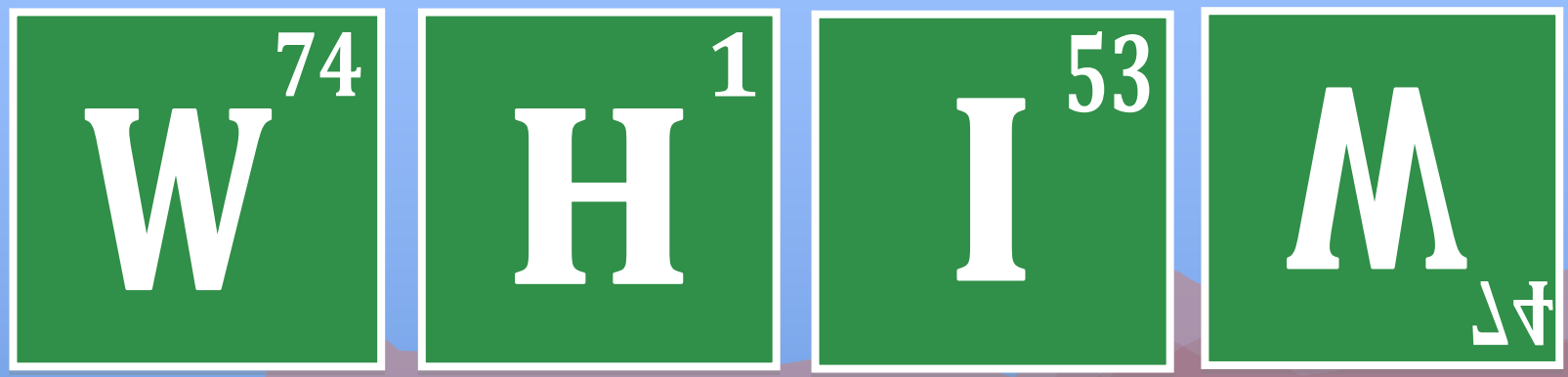
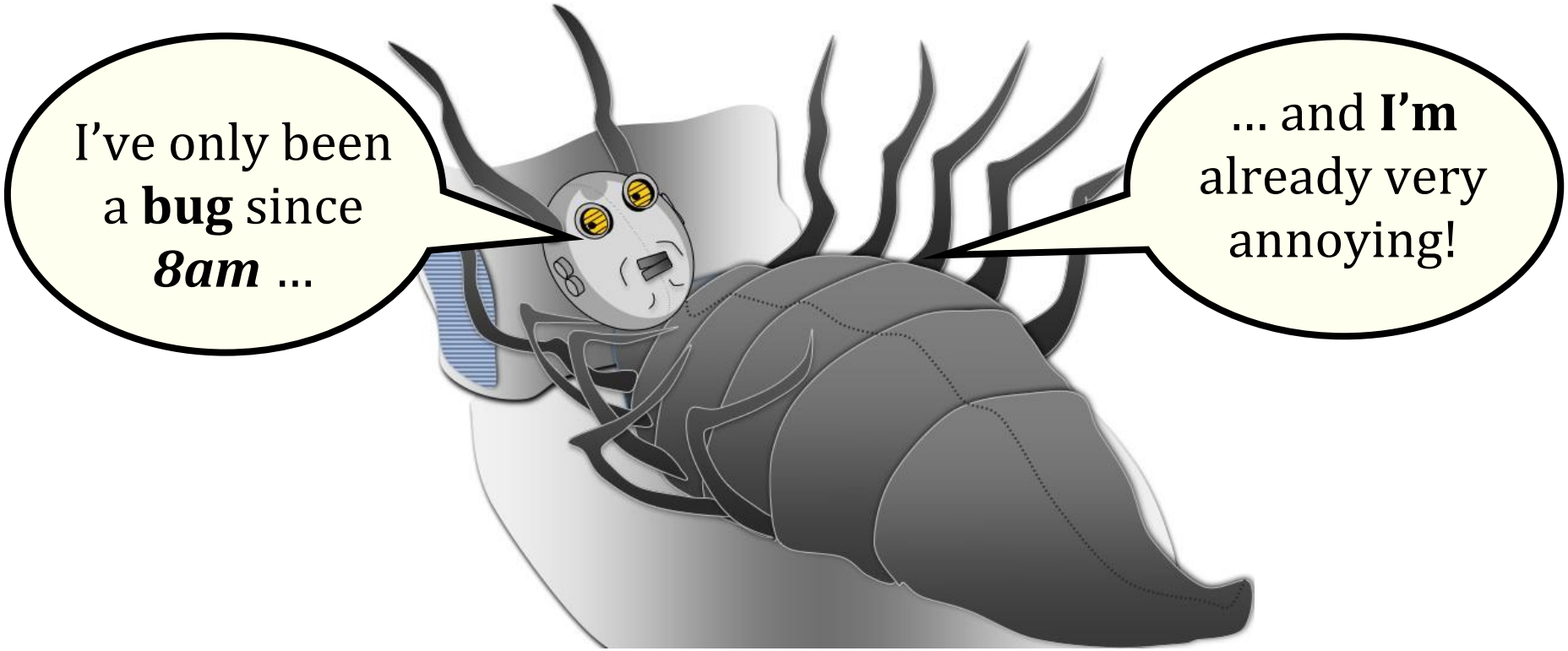

Modeling
Incongruity
Conflict and
Change
for Novel
Ideation
Coming
Good
&
Breaking
Bad
WHIM
Tony Veale, Afflatus.UCD.ie
@MetaphorMagnet

This work forms part of the WHIM project.



The What-If Machine*

** see also EC coordination action: **PROSECCO: PRO**moting the **S**cientific **E**xploration of **C**omputational **C**reativity*



***"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.

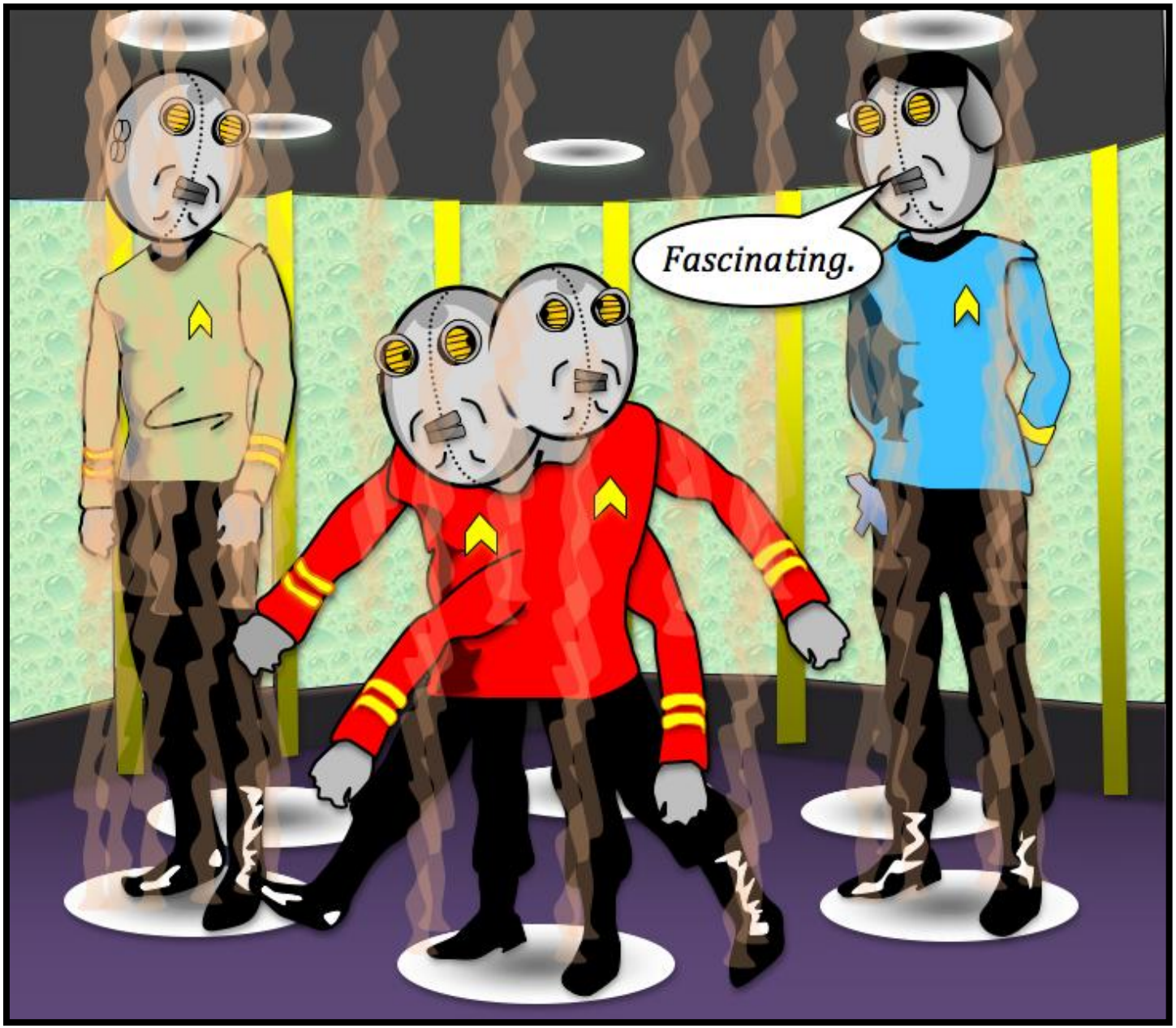
Change happens in stories – good stories at least – for a reason. It is typically an external expression of an internal conflict. Consider **Bruce Banner**'s transformation into the **Hulk**: Banner is repressed, physically puny, and cerebral: the Hulk, an expression of his inner tumult, is incandescent 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.

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.

1.
The general who became a slave ...
2.
... the slave who became a gladiator ...
3. ... the gladiator who *defied* an emperor!
Many Stories are driven by Change and Conflict

Good Stories employ Incongruity and Surprise

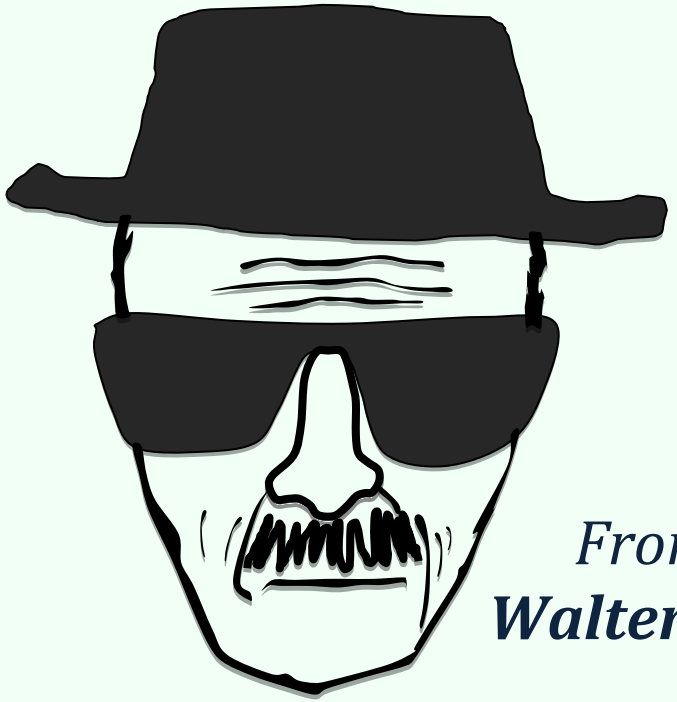
Successful Incongruity is ***initially jarring*** – shocking even – yet ***ultimately resolvable***



Incongruity is meaningfully created from **imperfect blends**, of characters or scenarios

Denouements can resolve incongruities in surprising ways, e.g. by blending story roles, actions, settings

Blends may only be partly visible, or partially realized
You did it ...
You finally DID it!
Blends resolve and dissolve throughout a story



W^{74}anted

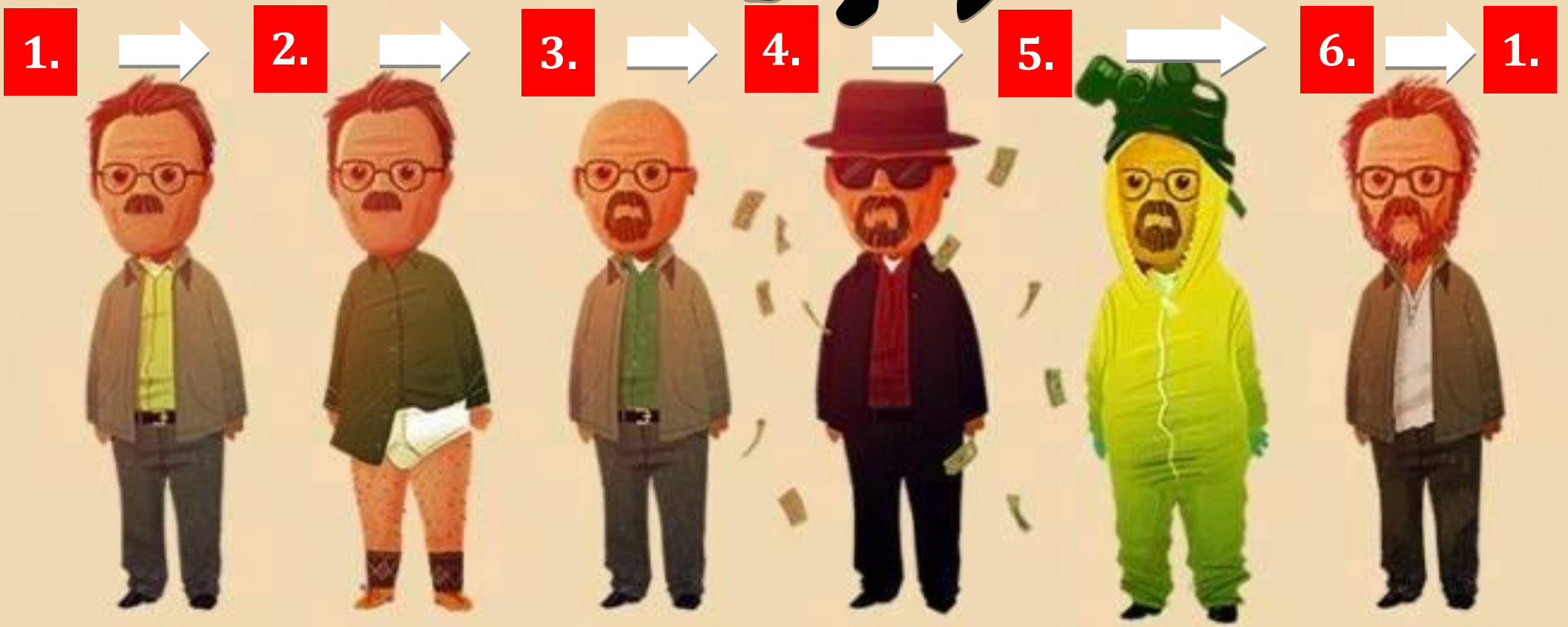
He^{2}isenberg

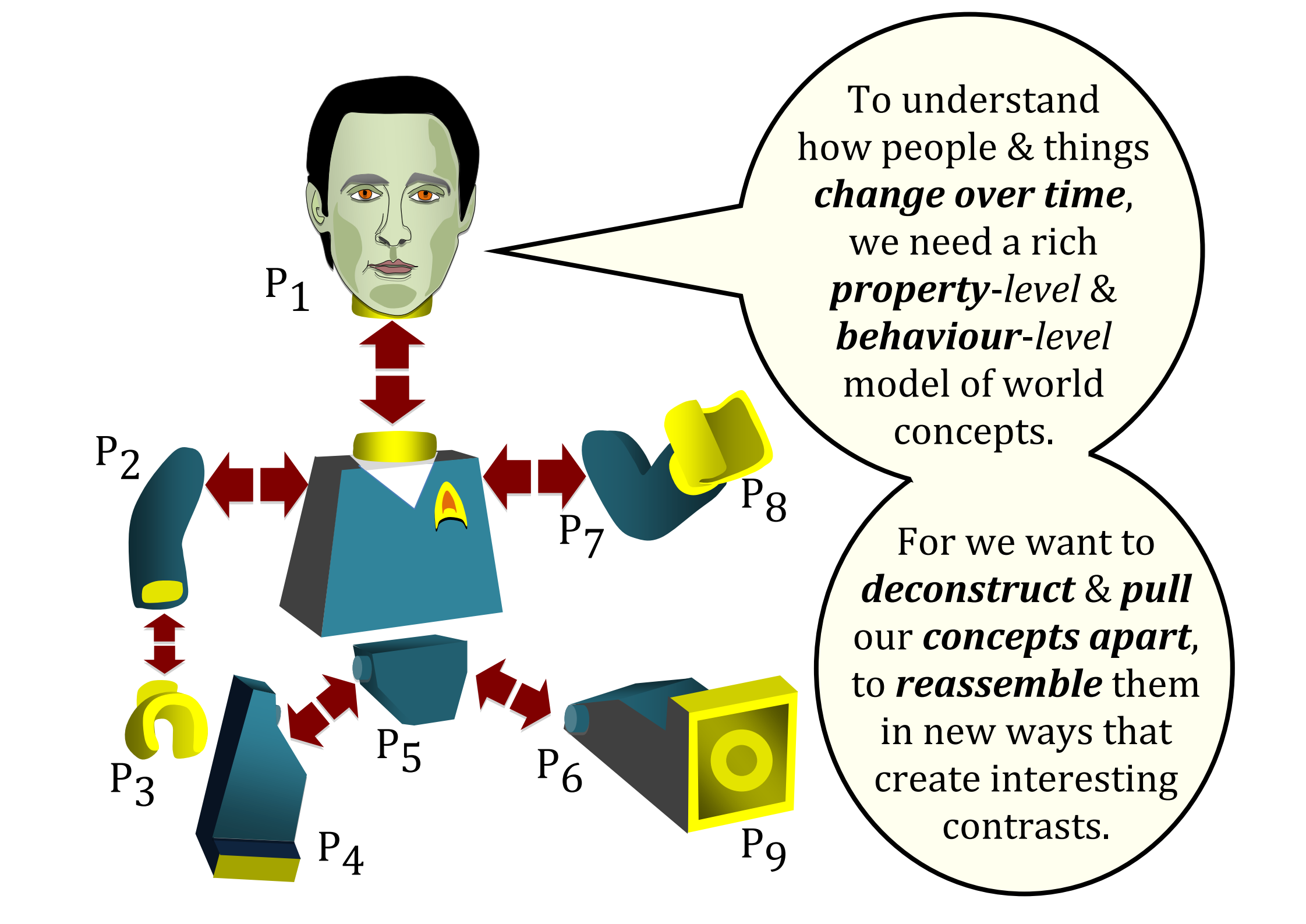
From caring husband & teacher to ruthless drug-baron:
***Walter White** is an unknowable, unstable **blend** of categories*

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

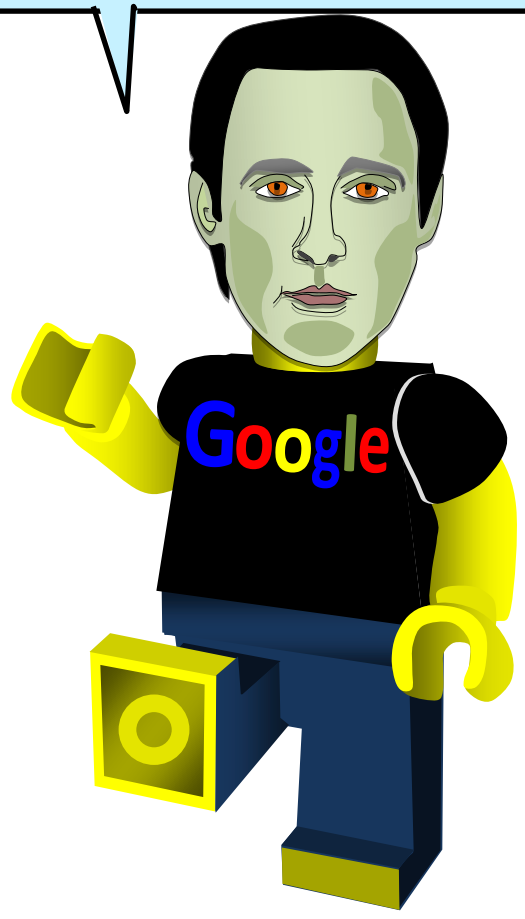
The gradual *unfolding* of a character is the ***running of an unstable blend***




P1
P2
P3
P4
P5
P6
P7
P8
P9
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.

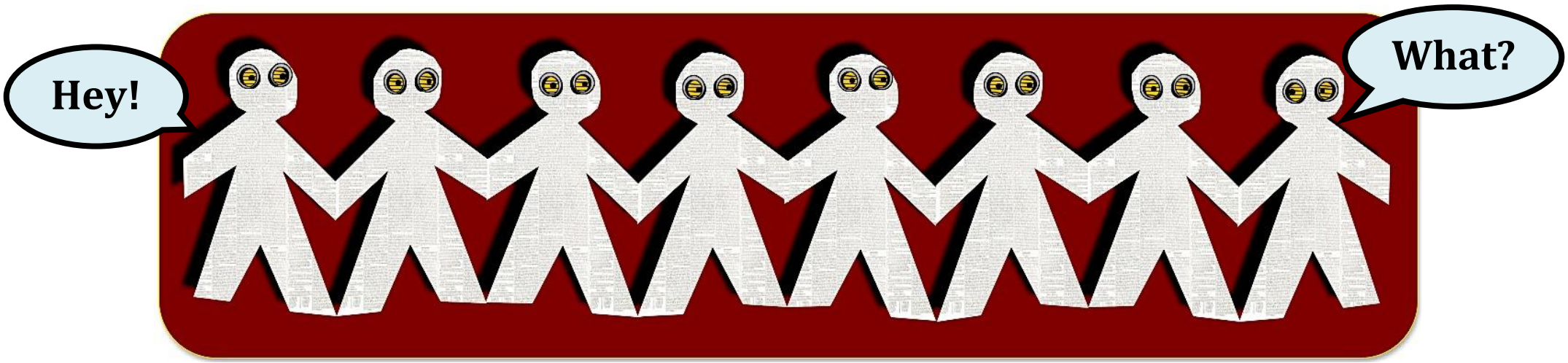
Gram 1	Gram 2	Gram 3	Gram 4	Freq
sharp	as	a	tack	9355
smart	as	a	whip	5331
sharp	as	a	razor	3353
sharp	as	a	knife	2917
close	as	a	blade	2338
wise	as	a	serpent	1468
sharp	as	a	pin	1226
sharp	as	a	needle	1207
thick	as	a	pencil	910
thin	as	a	pencil	801
clear	as	a	crystal	594
sharp	as	a	sword	539
straight	as	a	dart	518
sharp	as	a	whip	507
sharp	as	a	blade	445
clean	as	a	pin	352
sharp	as	a	dagger	349
clear	as	a	diamond	344
keen	as	a	razor	341
fast	as	a	shark	318
quick	as	a	whip	316
flat	as	a	tack	263
qualified	as	a	specialist	236

Linguistic constructs like the simile frame "***as ADJ as a NOUN***" allow us to harvest knowledge of stereo-typical 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*".

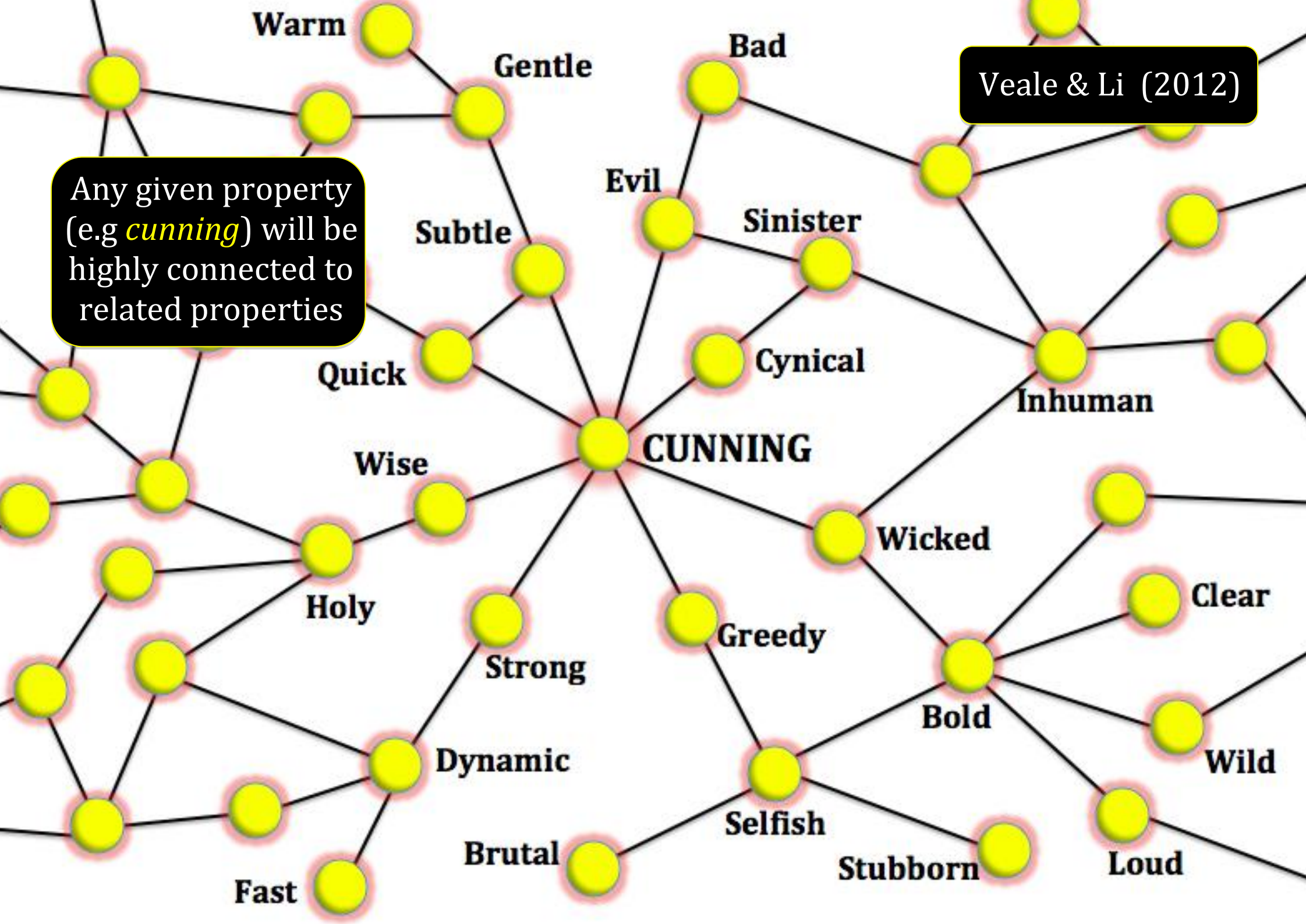
In general, similes with the double-ground form **X** is "as **P1** and **P2** as a **Y**" attest to the relationship between **P1** and **P2**. The more often that **P1** and **P2** support each other in an attested simile, the more likely that one will evoke the other in a descriptive context.

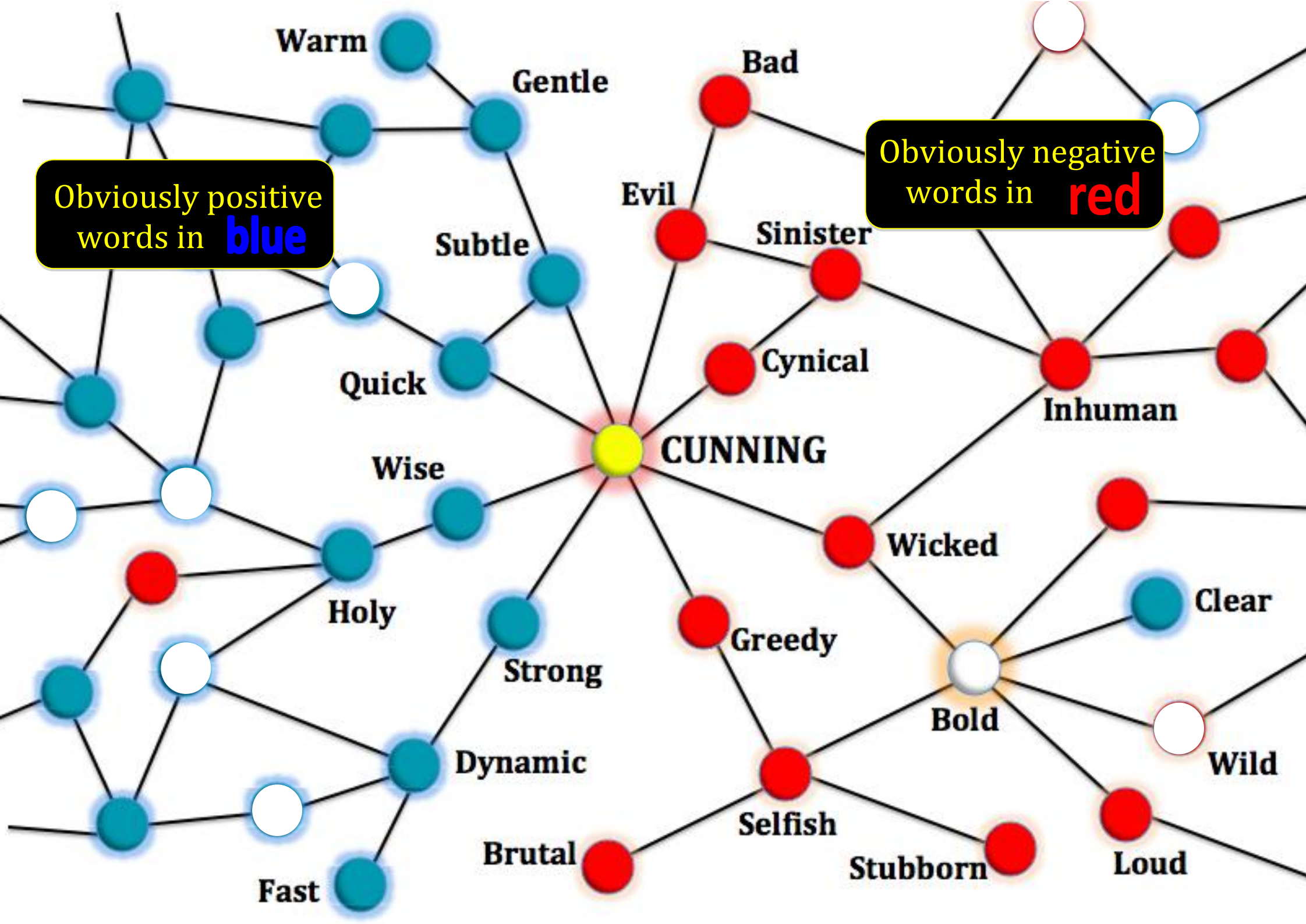
So learn how Stereotypical Properties Suggest and Imply Together

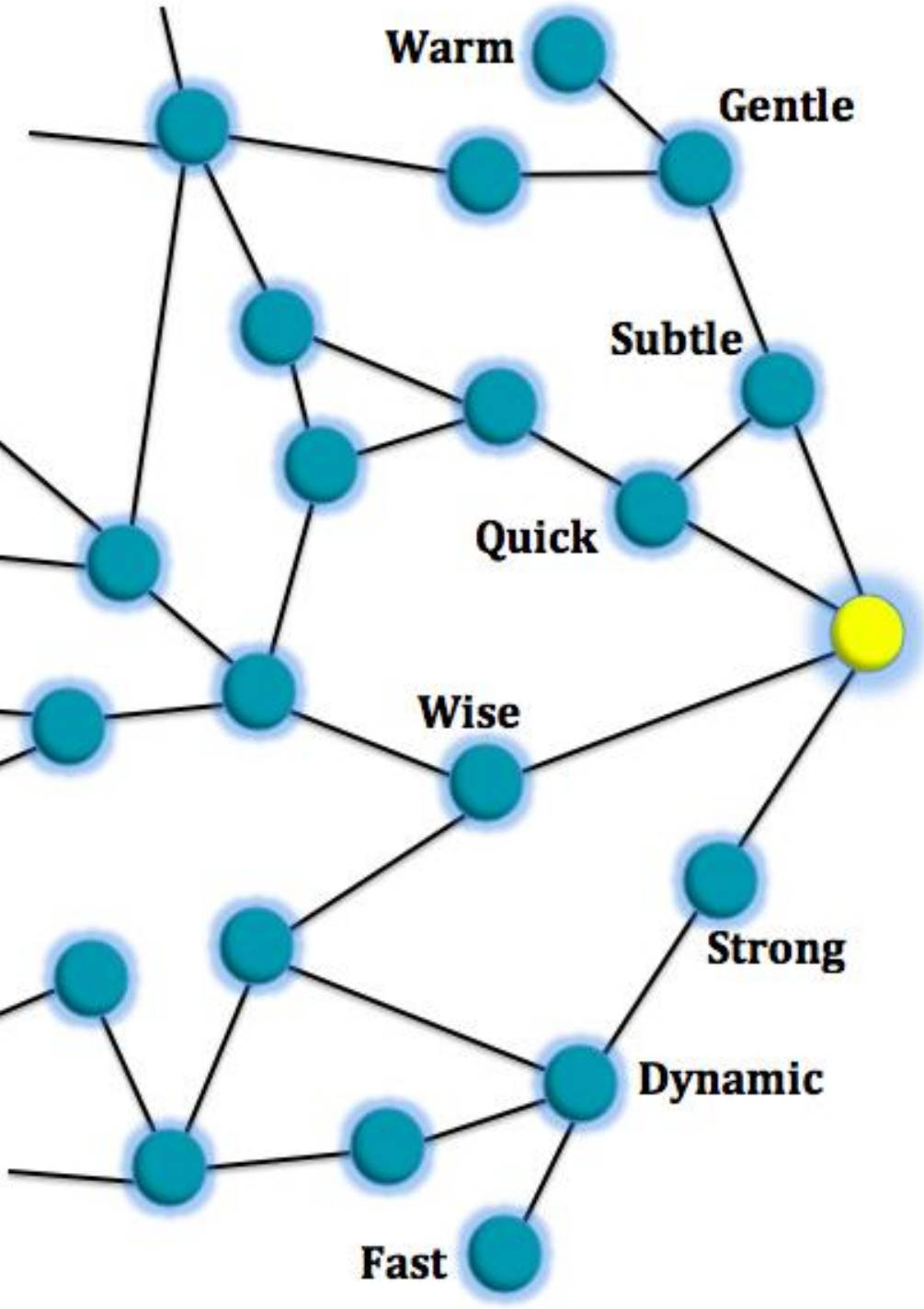
	hot	spicy	humid	fiery	dry	sultry	…
hot	– – –	*35*	*39*	*6*	*34*	*11*	…
spicy	75	– – –	0	15	1	1	…
humid	18	0	– – –	0	1	0	…
fiery	6	0	0	– – –	0		…
dry	6	0	0	0	– – –		…
sultry	11	1	0	2	0		
…	…	…	…	…	…	…	

Adjacency matrix of *mutually-reinforcing* properties acquired from WWW

Double-anchored query **“ as * and * as ”** to acquire associations


Warm
Gentle
Bad
Veale & Li (2012)
Any given property (e.g *cunning*) will be highly connected to related properties
Evil
Sinister
Subtle
Quick
Cynical
Inhuman
CUNNING
Wise
Wicked
Holy
Clear
Greedy
Strong
Bold
Dynamic
Wild
Selfish
Brutal
Stubborn
Loud
Fast


Obviously positive words in blue
Obviously negative words in red
Warm
Gentle
Subtle
Quick
Wise
Holy
Strong
Dynamic
Fast
Brutal
Selfish
Greedy
Bad
Evil
Sinister
Cynical
CUNNING
Wicked
Inhuman
Bold
Clear
Wild
Loud
Stubborn



+CUNNING

$N^+(\text{CUNNING})$

For **99.6%** of *positive* exemplars (1309 of 1314),

pos(x) > neg(x)

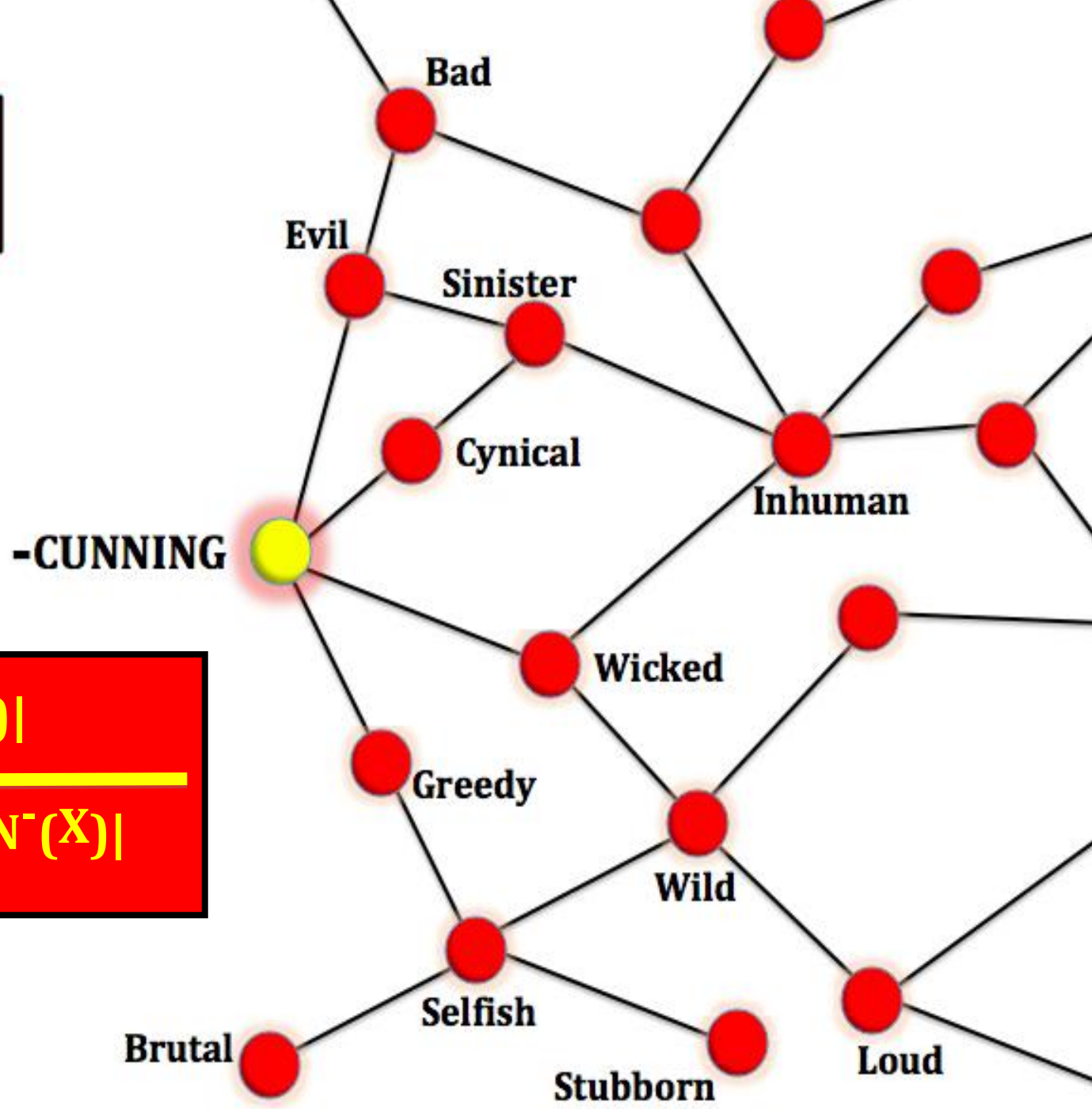
$$\text{pos}(x) = \frac{|N^+(X)|}{|N^+(X) \cup N^-(X)|}$$

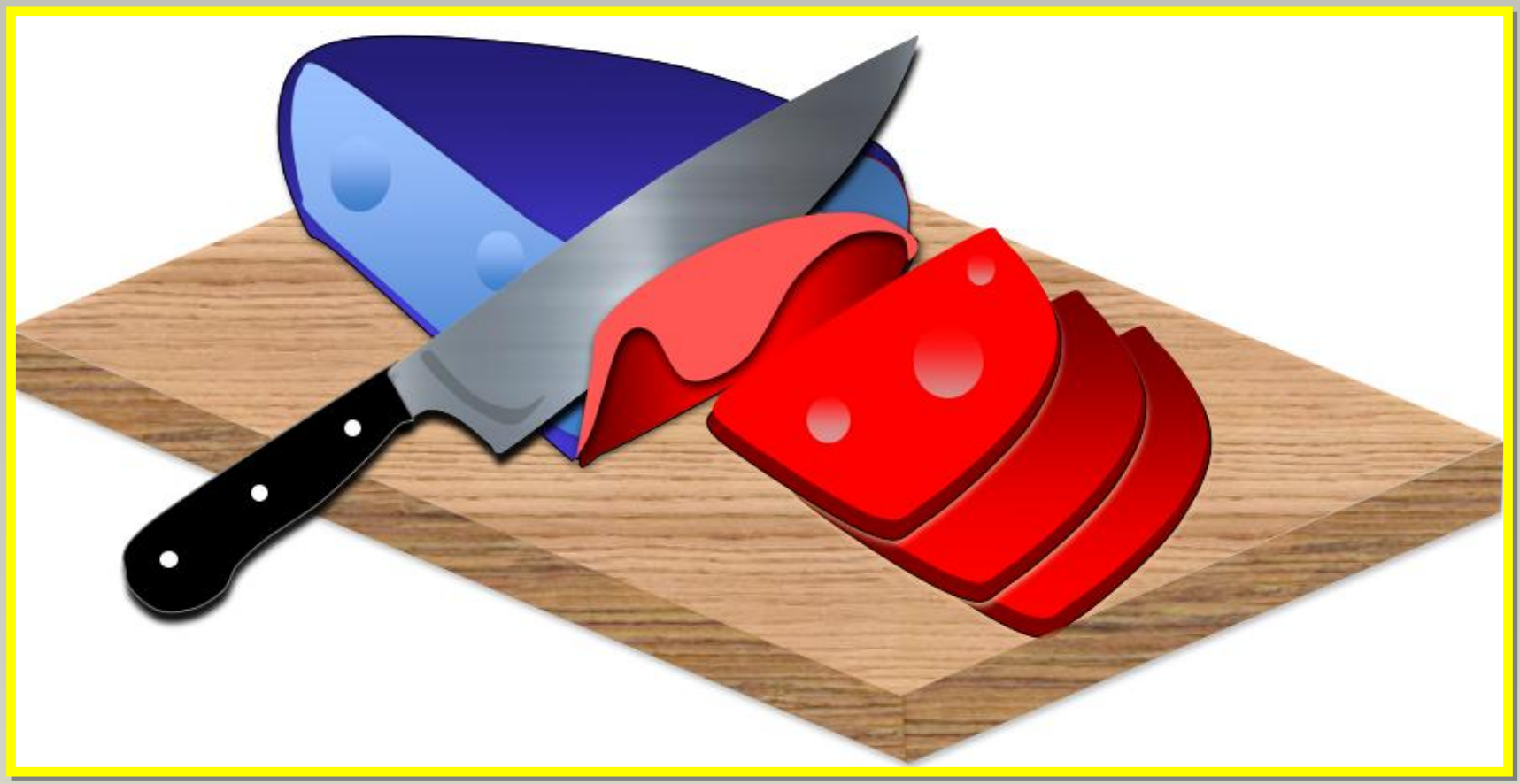
N^-(CUNNING)

For **98.1%** of *negative* exemplars (1359 of 1385),

neg(x) > pos(x)

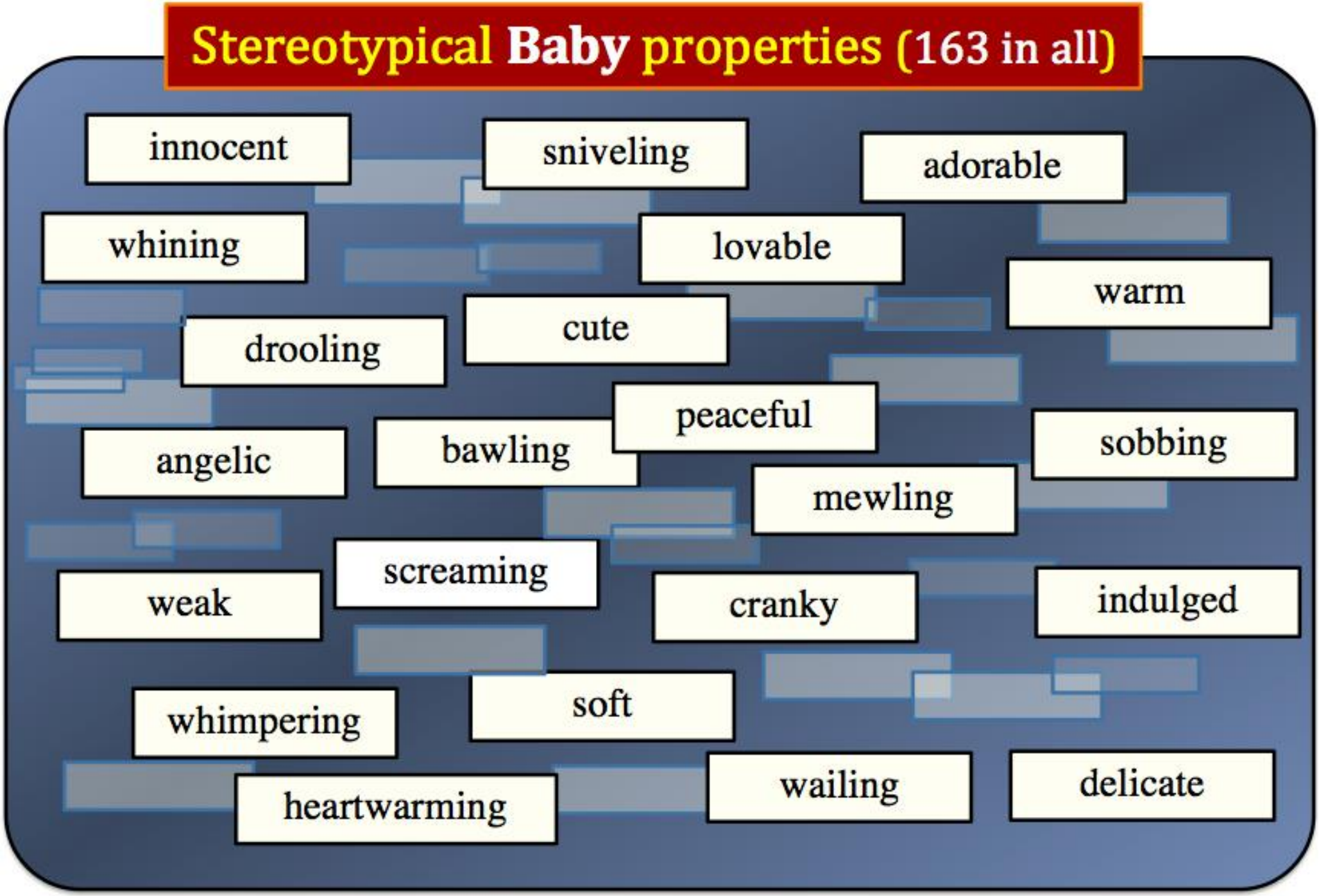
$$\textbf{neg(x)} = \frac{|N^-(X)|}{|N^+(X) \cup N^-(X)|}$$





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
cute
drooling
peaceful
angelic
bawling
sobbing
mewling
screaming
weak
cranky
indulged
soft
whimpering
wailing
delicate
heartwarming

+Baby e.g. "She's my *baby*"

innocent

adorable

lovable

peaceful

soft

warm

heartwarming

angelic

cute

delicate

-Baby e.g. "He's such a *baby*"

bawling

mewling

drooling

sniveling

screaming

whining

indulged

sobbing

cranky

whimpering

wailing

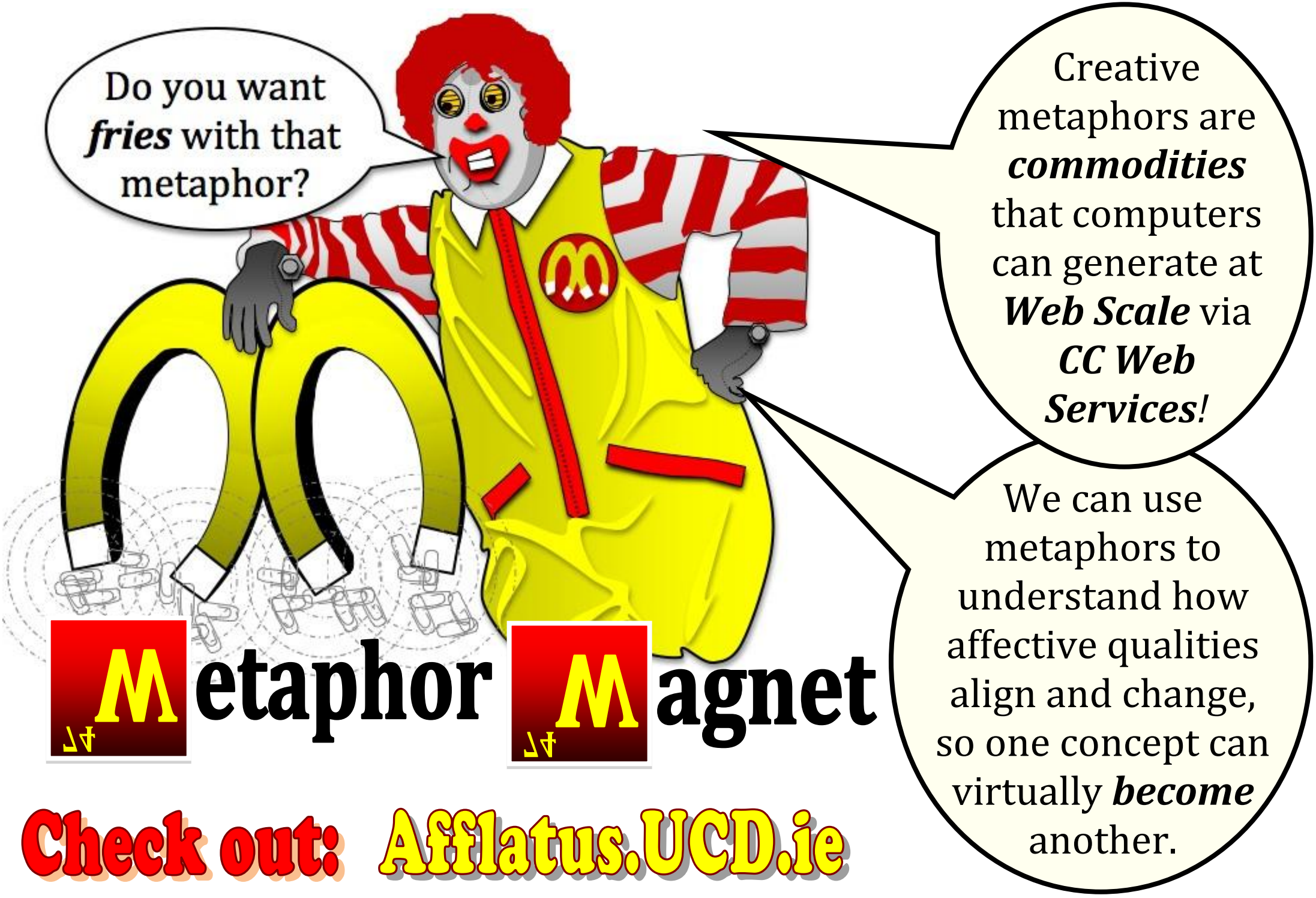
weak

Average P/R/F1 scores for the affective retrieval of positive and negative properties from 6,230 stereotypes

Macro Average (6230 stereotypes)	*Positive* properties	*Negative* properties
Precision	.962	.98
Recall	.975	.958
F-Score	.968	.968

Veale & Li (2012)

Avg. 6.51 properties per stereotype


Do you want *fries* with that metaphor?
Creative metaphors are ***commodities*** that computers can generate at ***Web Scale*** via ***CC Web Services!***
We can use metaphors to understand how affective qualities align and change, so one concept can virtually ***become*** another.
Metaphor Magnet
Check out: Afflatus.UCD.ie

Metaphor Magnet

View XML

Go Back

crime is a drug | Metaphorize This!

New to Metaphor Magnet? Please see the README documentation.

Target Metaphors: *crime*

alarming:crime, burning:meteor, pure:hospital, illegal:drug, integrated:mixture, terrible:tyrant, foolish:idiot, shocking:monster, perverted:weirdo, threatening:regime, indispensable:essential, menacing:brawler, burning:rash, threatening:assailant, soothing:chime, refreshing:spring, horrid:madness, unacceptable:hazard, gruesome:prison, alarming:cancer,

Source Metaphors: *drug*

filthy:sewer, soothing:narcotic, soothing:bath, dangerous:grenade, devastating:terrorist, ruthless:monopoly, devastating:epidemic, soothing:balm, devastating:poison, dangerous:minefield, devastating:virus, loving:mom, dedicated:zealot, cold:snowball, sophisticated:microprocessor, devastating:war, damaging:iceberg,

Metaphor Magnet suggests metaphors on demand for given topics or topic pairs. It finds conventional metaphors in corpora and elaborates them via rich stereotypes.

Crime is a Cancer

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 dreaded punishments.

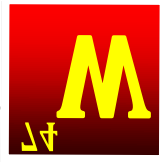
I feel victimized by crime and its harsh penalties. Do they harm you?

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, sickened_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,



Crime is a Cancer

These feelings and associations can be bundled into a complex form such as a ***poem***.

No Drug Is More Reportedly Illegal

P15

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

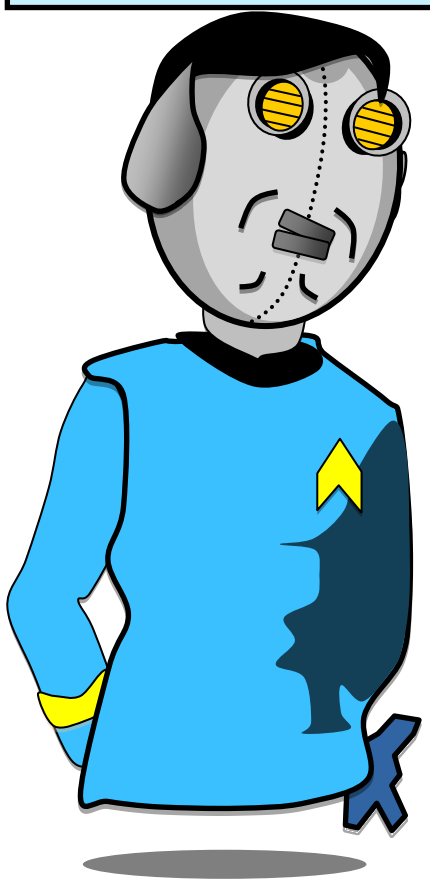
Discontinued drugs and valid vaccines require very similar efficacies

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.

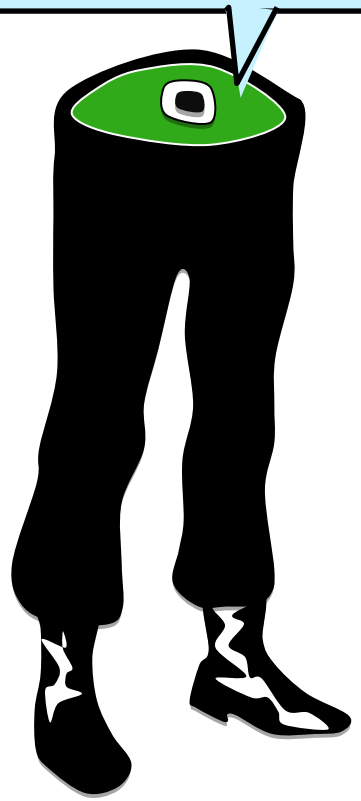


Start State

Gram 1	Gram 2	Freq
students	become	144046
parents	become	23935
kids	become	19768
customers	become	18736
employees	become	18227
consumers	become	17719
patients	become	17609
players	become	16693
teachers	become	16642
friends	become	15826
clients	become	15274
girls	become	13866
workers	become	13473
participants	become	11686
citizens	become	9086
pupils	become	8770
leaders	become	7034
adults	become	6836

ADULT

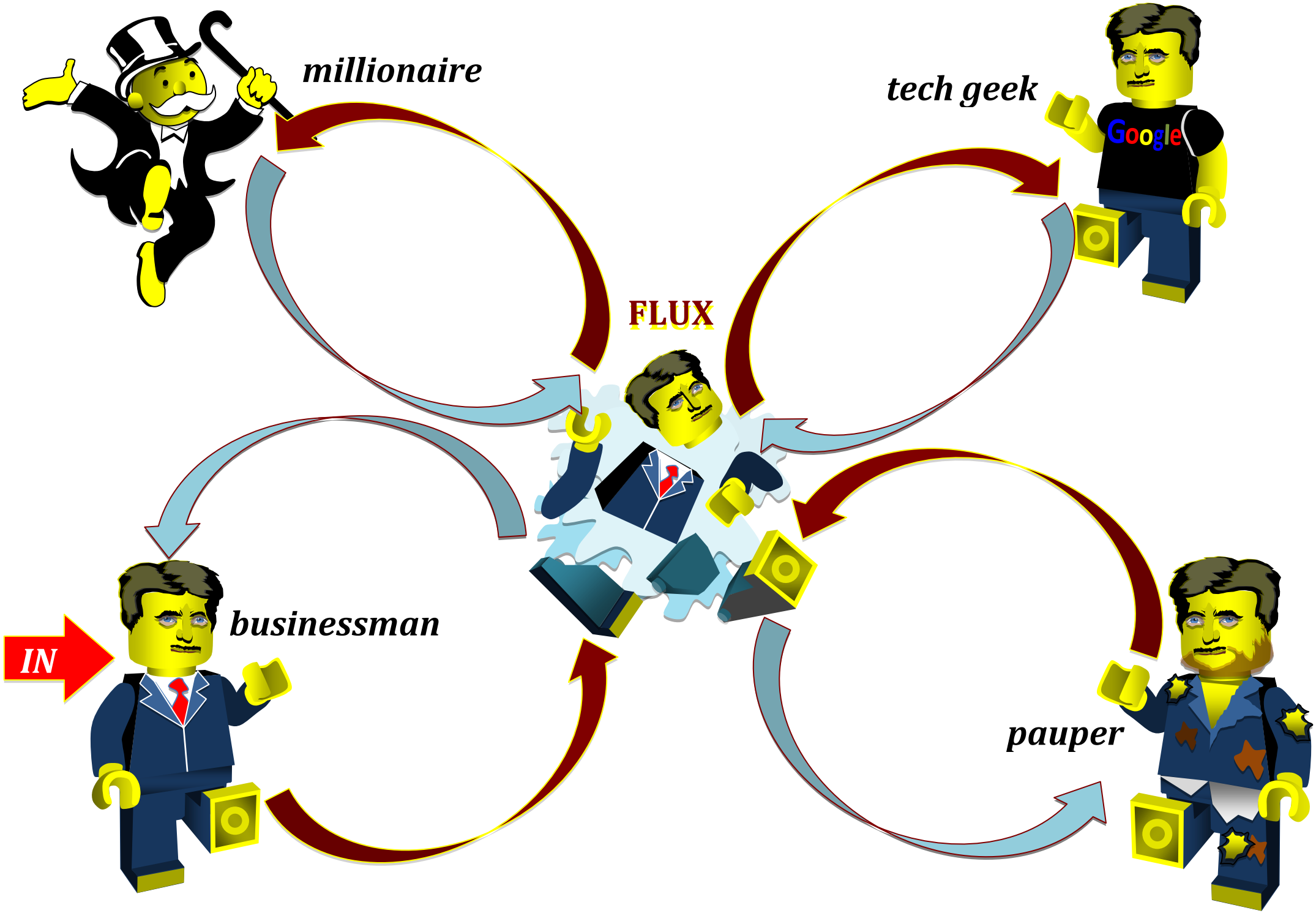
The goal is to produce a character arc that is plausible yet interesting – that is, jarring for the right reasons (*loss of* ***wealth****, gain in* ***skill****, rapid increase in* ***power***) and not for the wrong ones (*decreasing in* ***age****, changing in* ***gender****, etc.*)



End State

Gram 1	Gram 2	Freq
become	members	213415
become	friends	139833
become	believers	118715
become	leaders	59391
become	victims	56844
become	teachers	39812
become	partners	34704
become	experts	32921
become	adults	32696
become	parents	31452
become	Christians	26927
become	targets	24696
become	entrepreneurs	15359
become	homeowners	14510
become	advocates	13446
become	mothers	11749
become	candidates	11701
become	refugees	11246

ADULT


millionaire
tech geek
Google
FLUX
IN
businessman
pauper

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

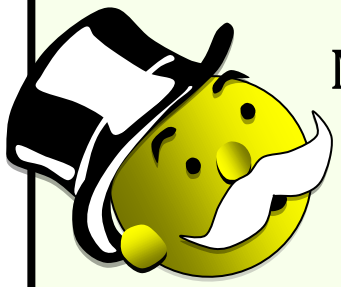
A Lexical Database of Antonyms (e.g. **WordNet**) allows us to align the contrasting properties of two stereotypical representations.

"Story pitch" Summarization via Automated Headlines

Millionaire **m**addened by **m**ansions, **w**alks into **w**orkhouses

Millionaire **r**ejects **r**ichness, **h**ungers for **h**opelessness

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

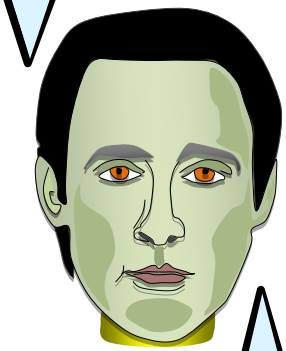
Millionaire's artificial privilege masked genuine deprivation

Millionaire's public wealth masked pervasive poverty

Millionaire's false wealth masked genuine deprivation

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?

MetaphorIsMyBusiness
@MetaphorMagnet

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

MetaphorIsMyBusiness
@MetaphorMagnet

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***?

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

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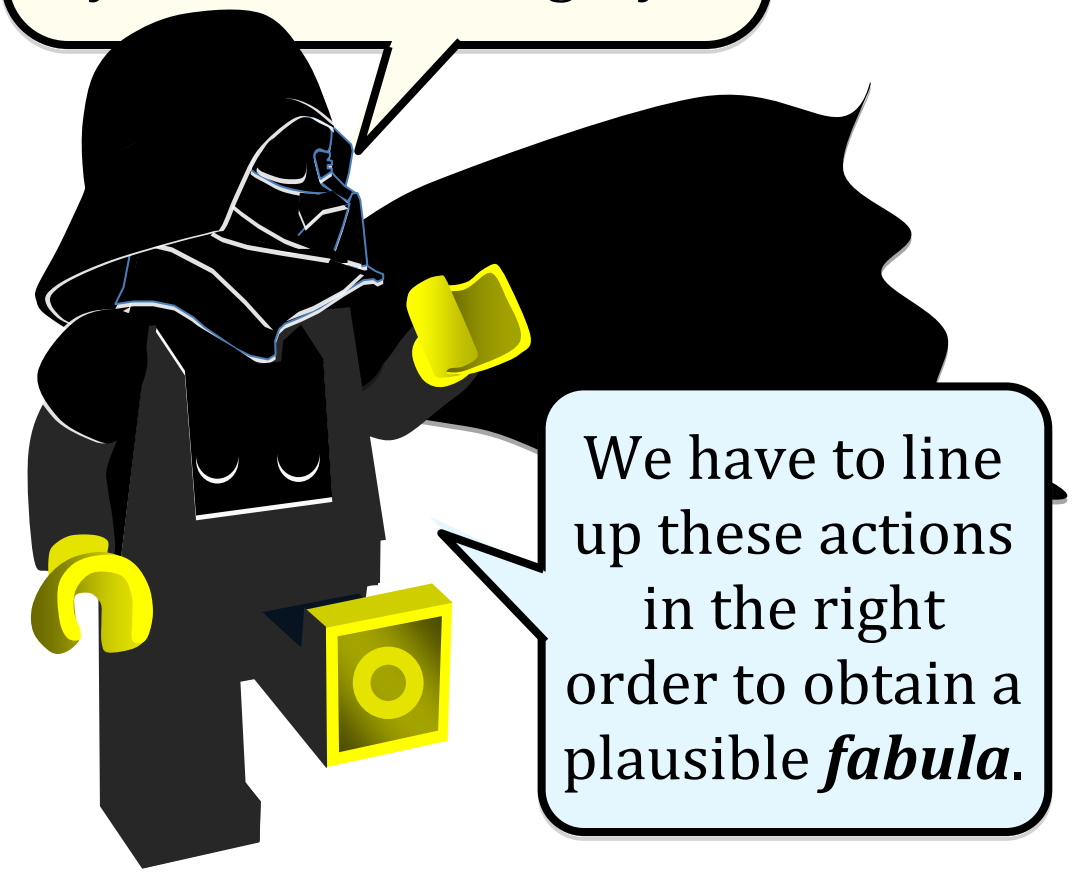
Comedians break taboos. Bandits embrace the criminality that undermines the societies that enforce taboos. Who is better? #BanditOrComedian

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***.

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What leads cute clowns to retire from circuses, to study necromancy and to become dreaded wizards? #ClownOrWizard?

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What leads unelected monarchs to abdicate thrones, to campaign for senates and to become elected senators? #MonarchOrSenator?

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What is a journalist but a reputable voyeur? What is a voyeur but a sleazy journalist? #JournalistOrVoyeur?

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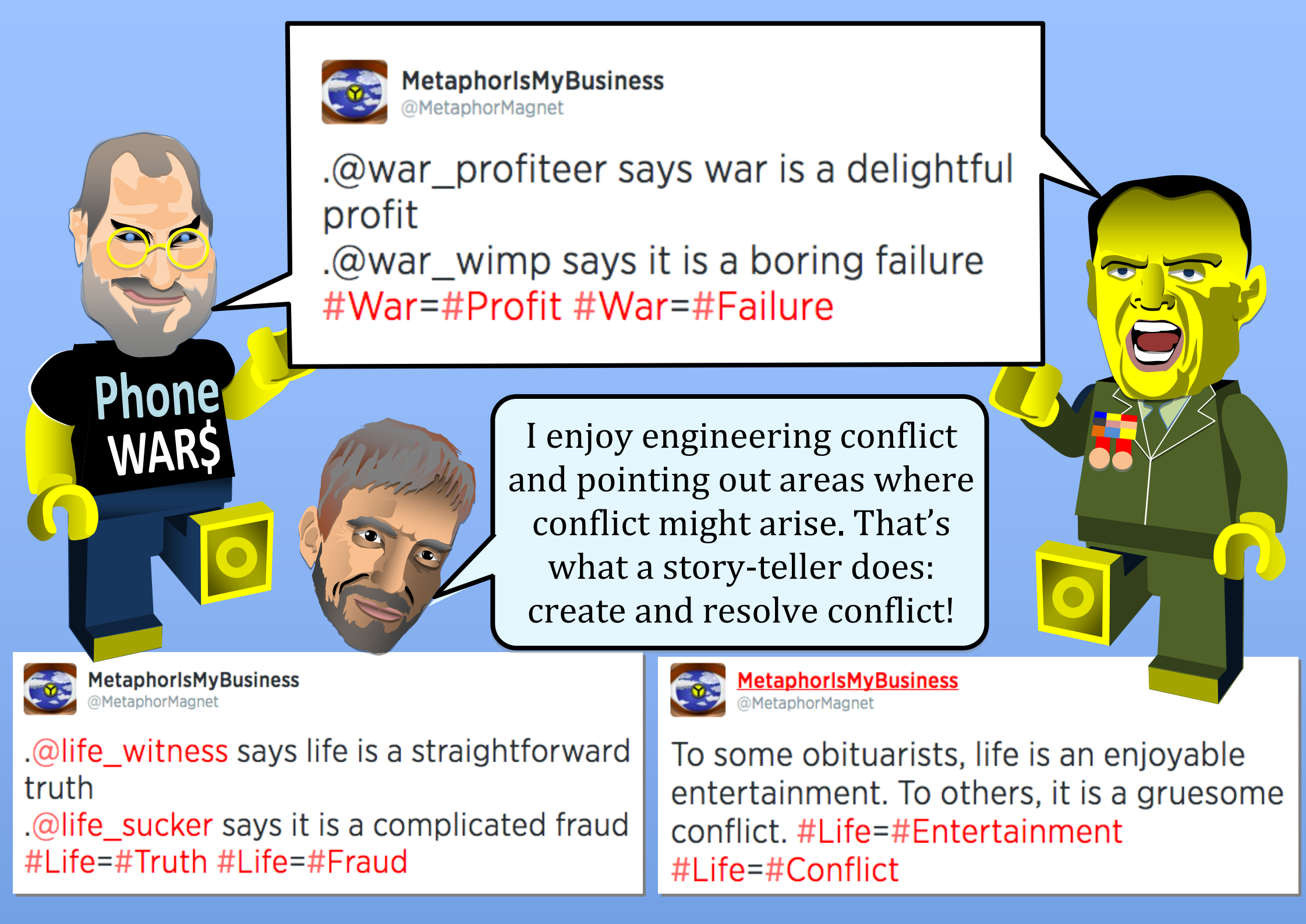
What causes reputable journalists to be dismissed from news media, to embrace voyeurism and to become sleazy voyeurs? #JournalistOrVoyeur?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.@war_profiteer says war is a delightful profit
.@war_wimp says it is a boring failure
#War=#Profit #War=#Failure
Phone WAR$
I enjoy engineering conflict and pointing out areas where conflict might arise. That's what a story-teller does: create and resolve conflict!
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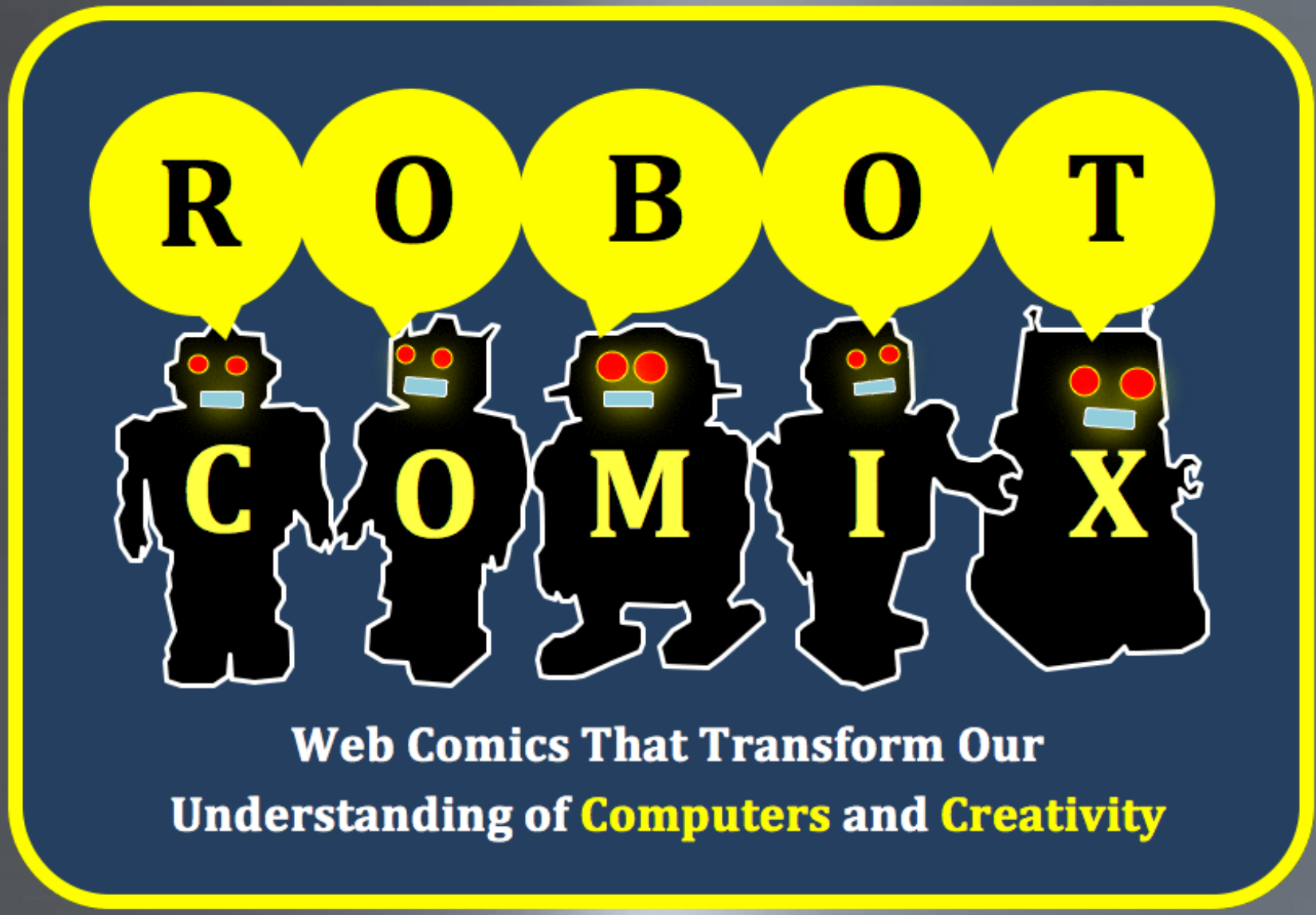
.@life_witness says life is a straightforward truth
.@life_sucker says it is a complicated fraud
#Life=#Truth #Life=#Fraud
MetaphorIsMyBusiness
@MetaphorMagnet
To some obituarists, life is an enjoyable entertainment. To others, it is a gruesome conflict. #Life=#Entertainment #Life=#Conflict

You want metaphors? ***I got*** *yer metaphors. Deep metaphors. Shallow metaphors. Shiny metaphors. It's like I'm* ***giving them away!*** *Lovely Jubbly metaphors and the like* at
http://Afflatus.UCD.ie



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