

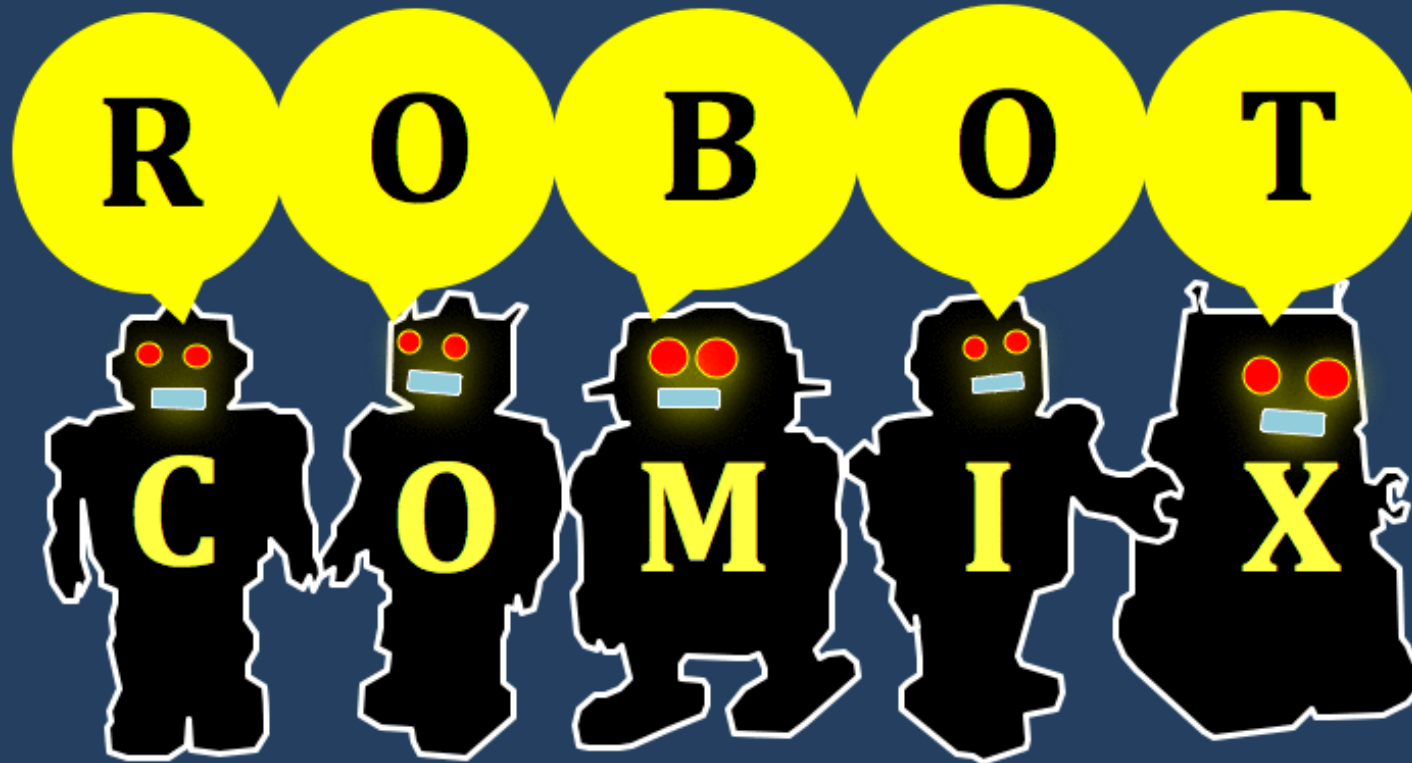
Do Androids Dream of Eclectic Tweets?



© Tony Veale
2014

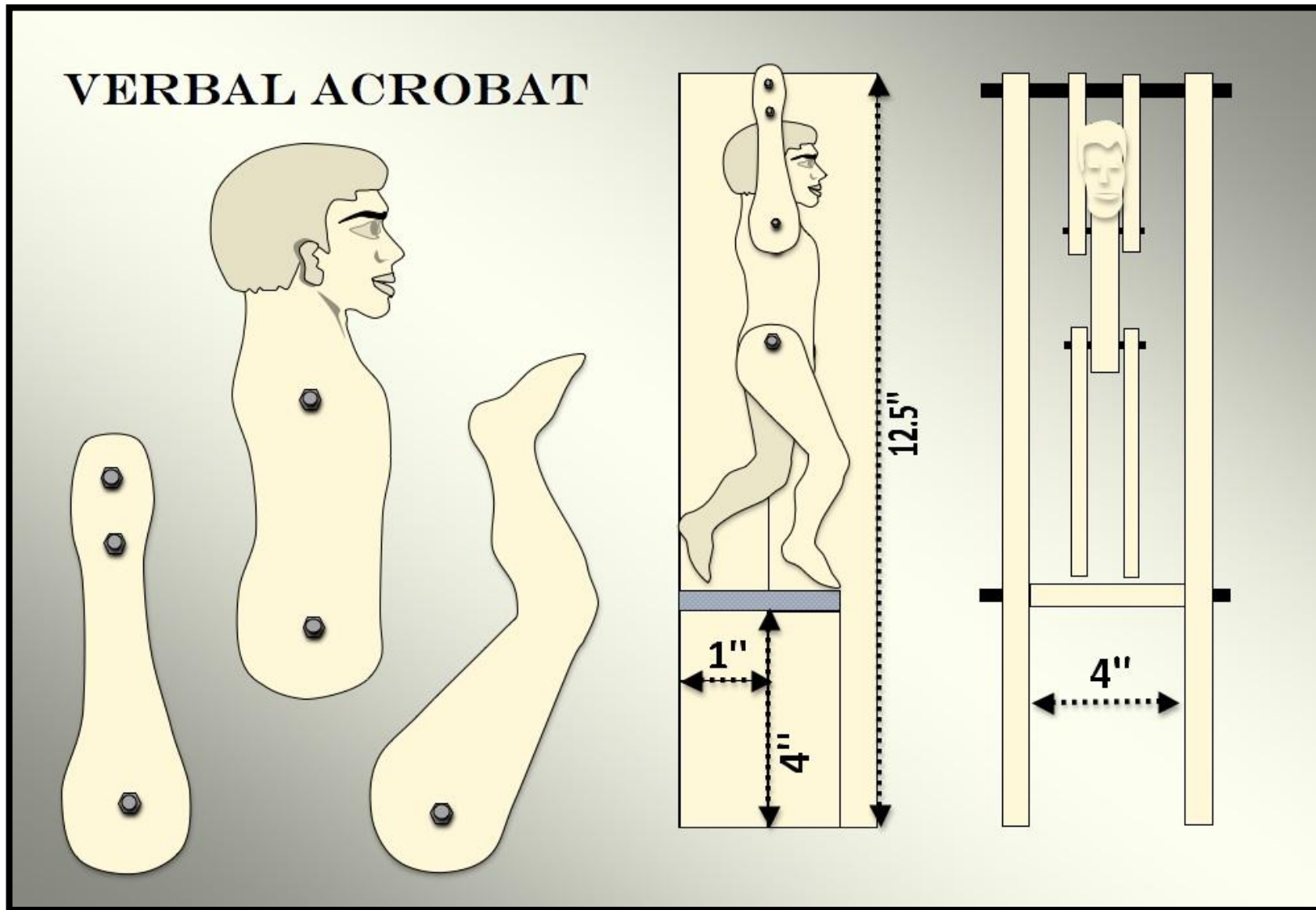
Tony.Veale@gmail.com

Anatomy of a Creative Twitterbot

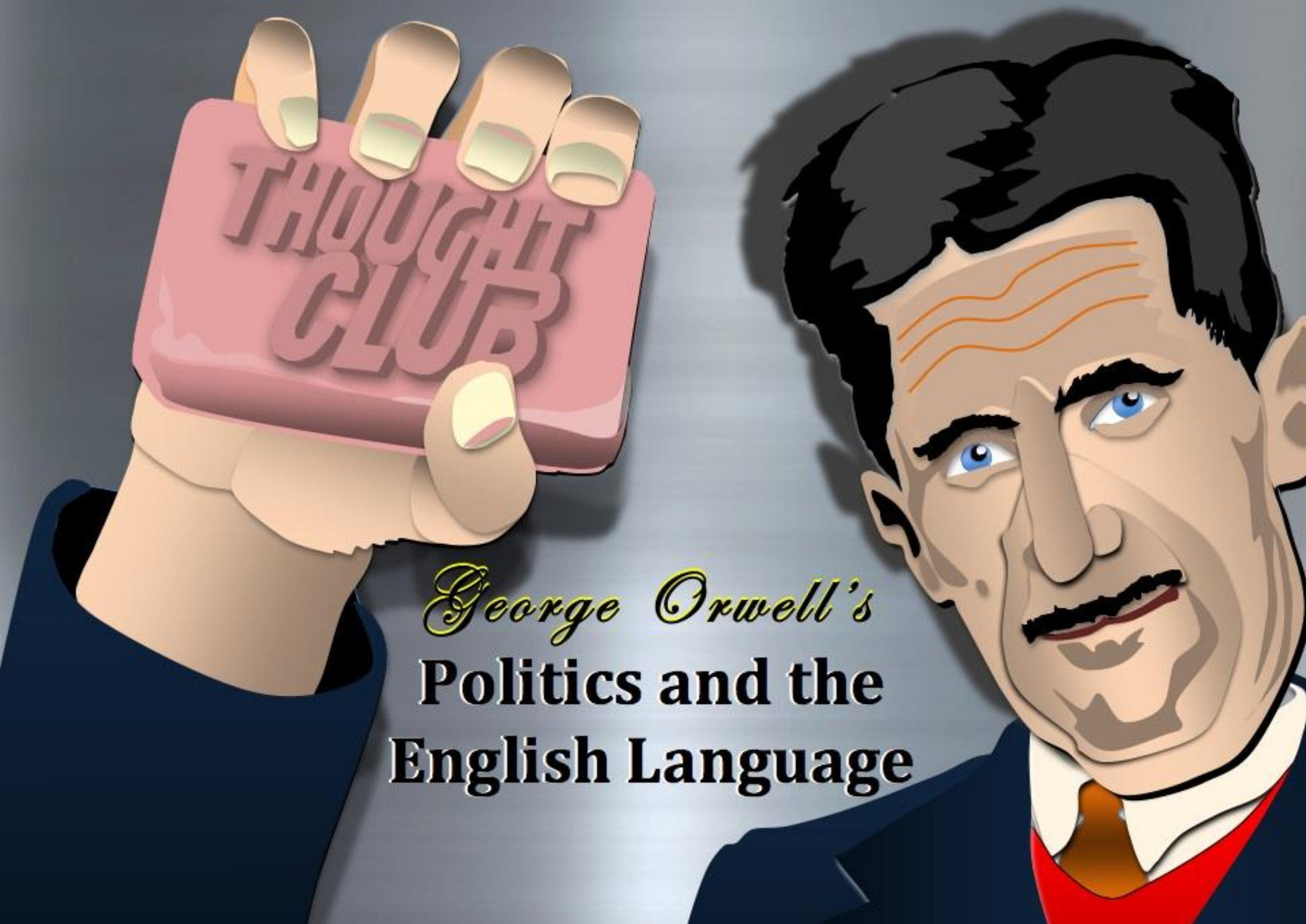


Web Comics That Transform Our
Understanding of **Computers** and **Creativity**

For more comix on creativity: RobotComix.com



We are going to explore the mechanics of a verbal acrobat: a creative, metaphor-generating ***Twitterbot***. But first we need to ask what makes *language* creative. We need to ask a critic who pulls no punches: step up **Mr. George Orwell** ...



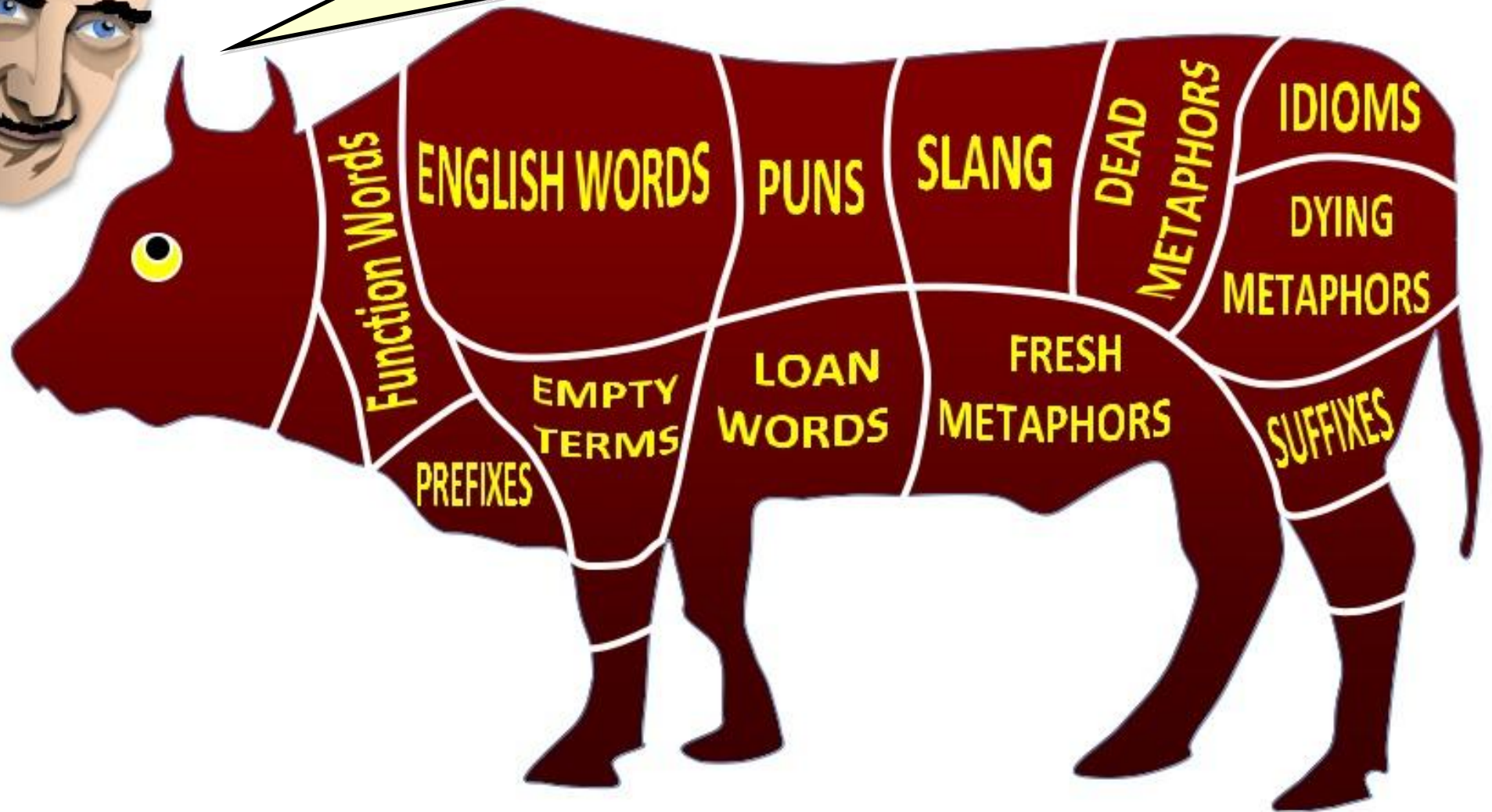
George Orwell's
**Politics and the
English Language**

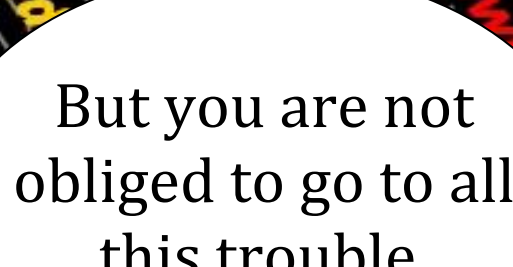


Most people who bother with the matter at all would admit that the English language is *in a bad way*.

It becomes *ugly* and *inaccurate* because our thoughts are foolish, but the *slovenliness* of our language makes it easier for us to have foolish thoughts.

A *scrupulous writer*, in every sentence that he writes, will ask himself at least four questions, thus:
What am I trying to *say*? What *words* will express it?
What *image* or *idiom* will make it clearer? Is this *image fresh enough* to have an effect?



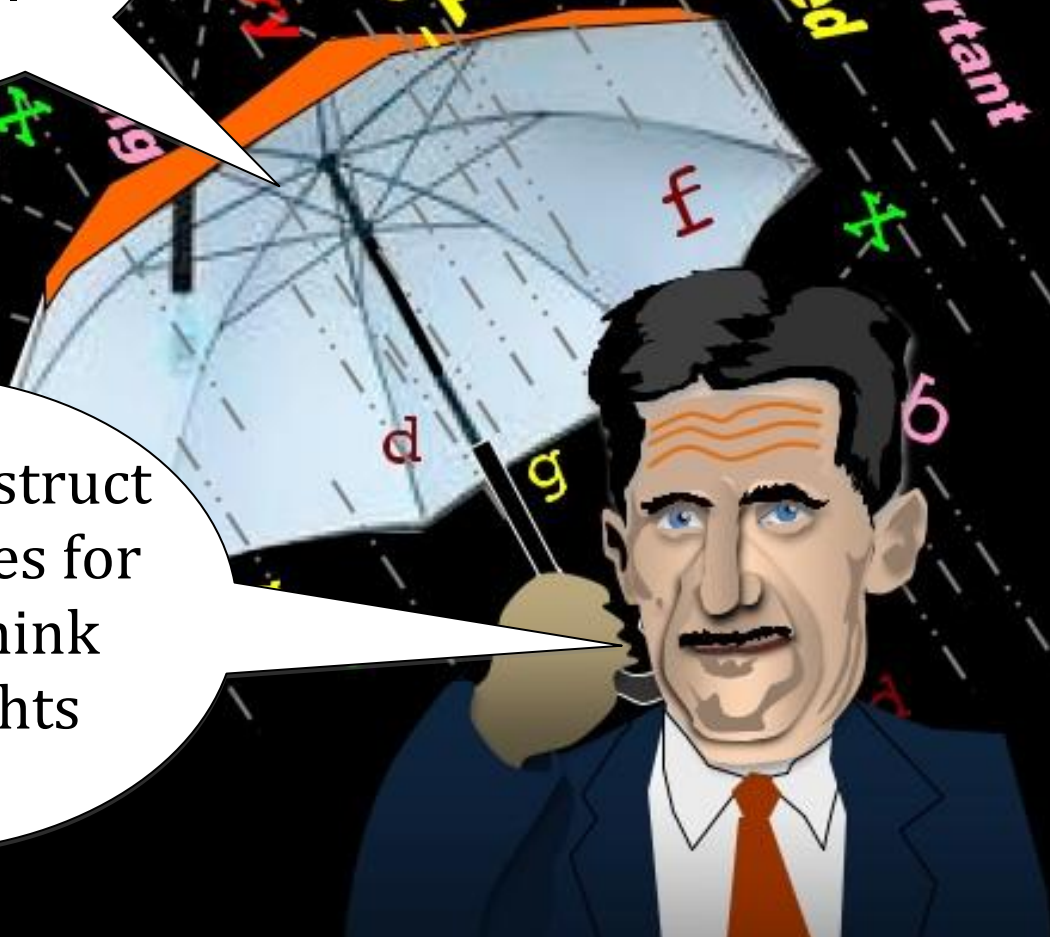


But you are not obliged to go to all this trouble.

You can shirk it by simply throwing your mind open and letting the *ready-made phrases* come ***crowding in.***

ing in.

They will construct
your sentences for
you—even think
your thoughts
for you.



This invasion of one's mind by *ready-made phrases* can only be prevented if one is constantly on guard against them, and every such phrase *anesthetizes* a portion of one's brain.



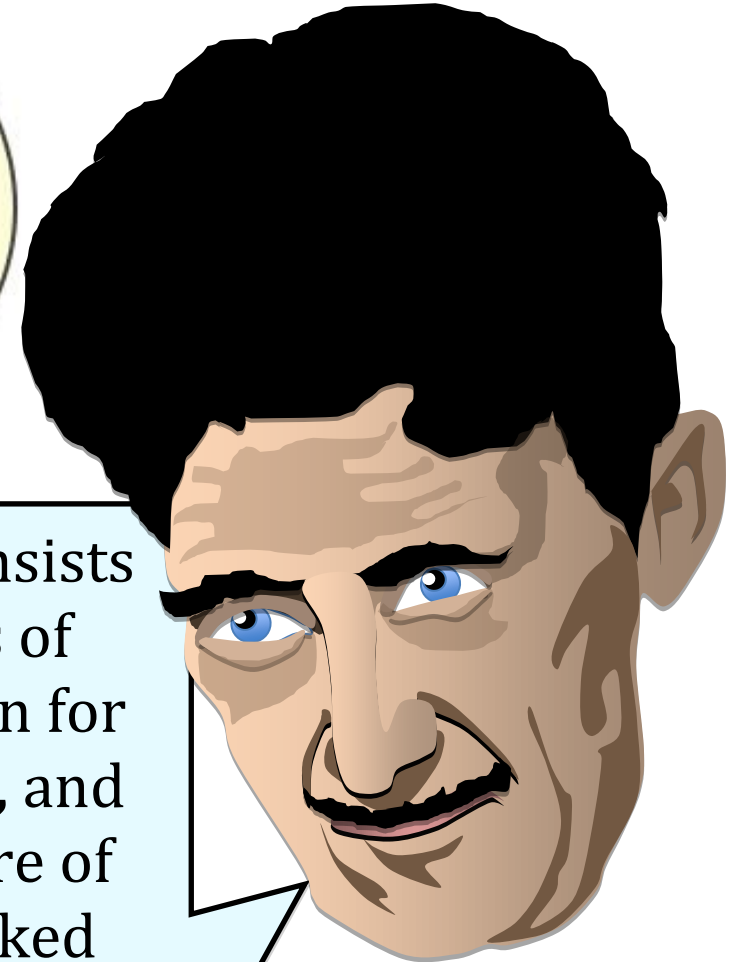


*Do you
mind?*

I happen to be
a famously
creative
readymade!

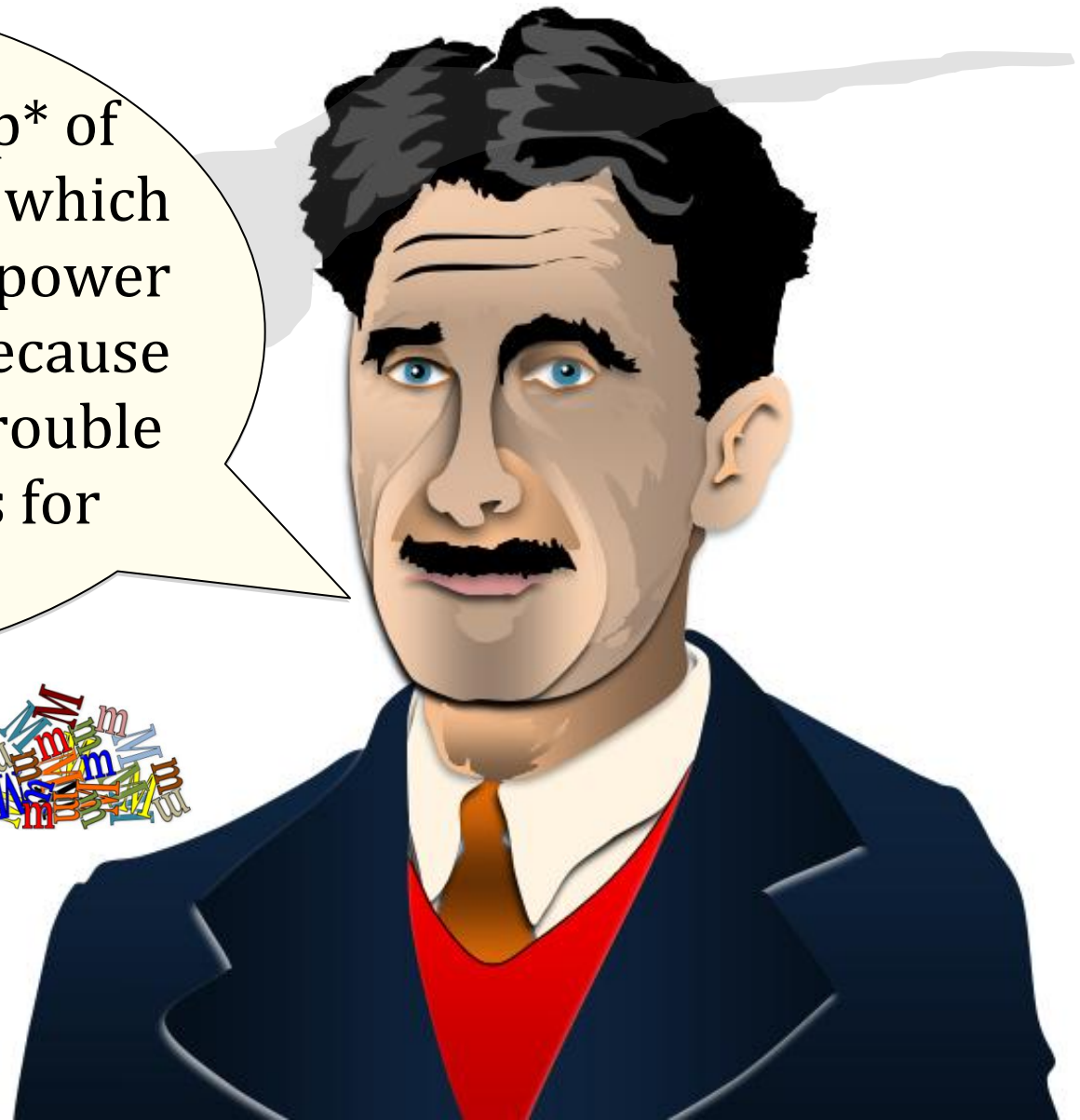
Marcel Duchamp's "**Fountain**"
(1917): The Art World's Most
Famous Ready-Made Artwork

Sigh. Prose consists
less and less of
WORDS chosen for
their meaning, and
more and more of
PHRASES tacked
together like the
sections of a pre-
fabricated hen-house.




Moreover

There is a huge dump* of **worn-out metaphors** which have lost all evocative power and are merely used because they save people the trouble of inventing phrases for themselves.



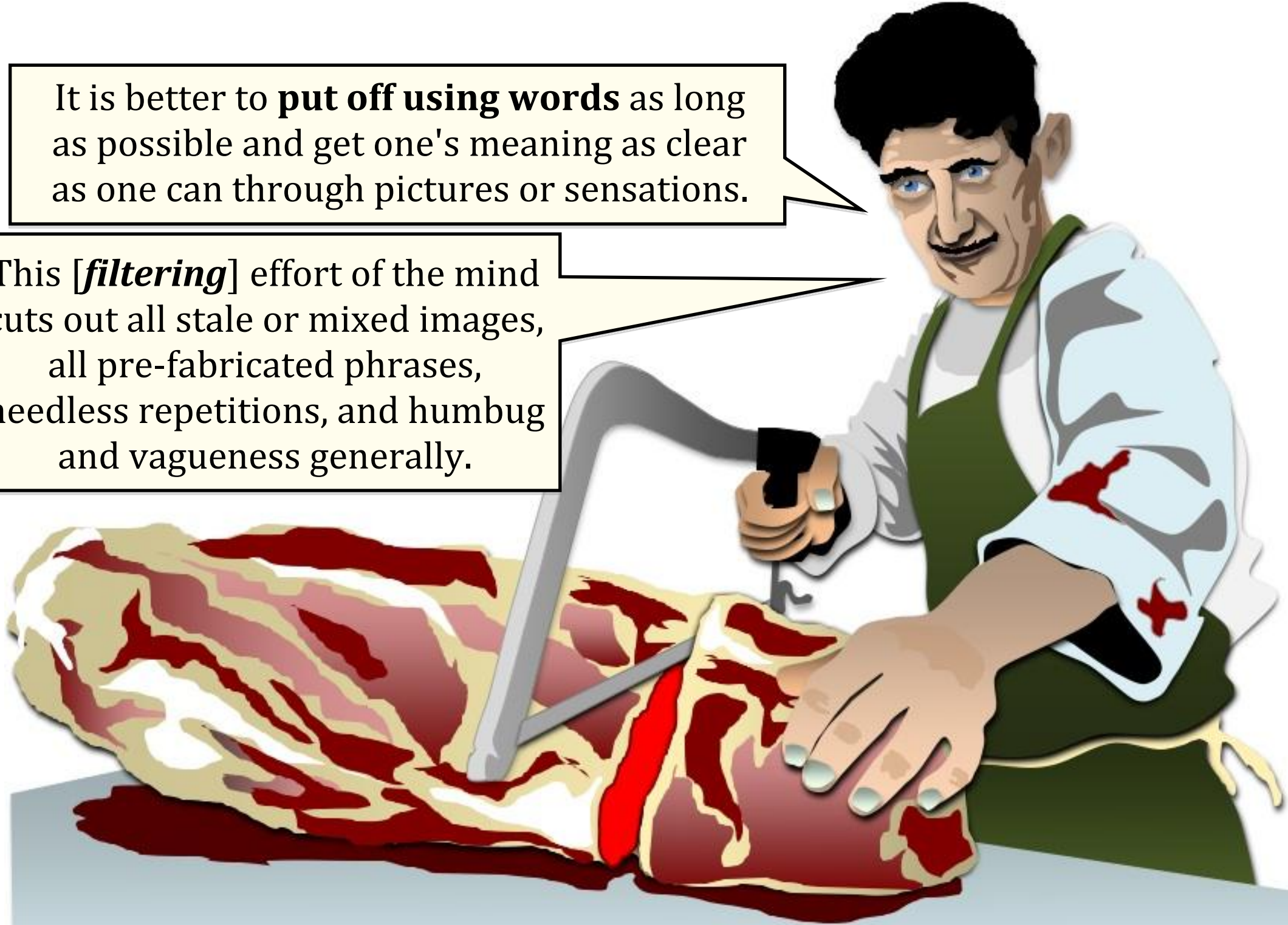
*Though linguist **Geoff Pullum** calls Orwell's polemic "*stupid and dishonest*", a "*load of Orwellian cobblers*"

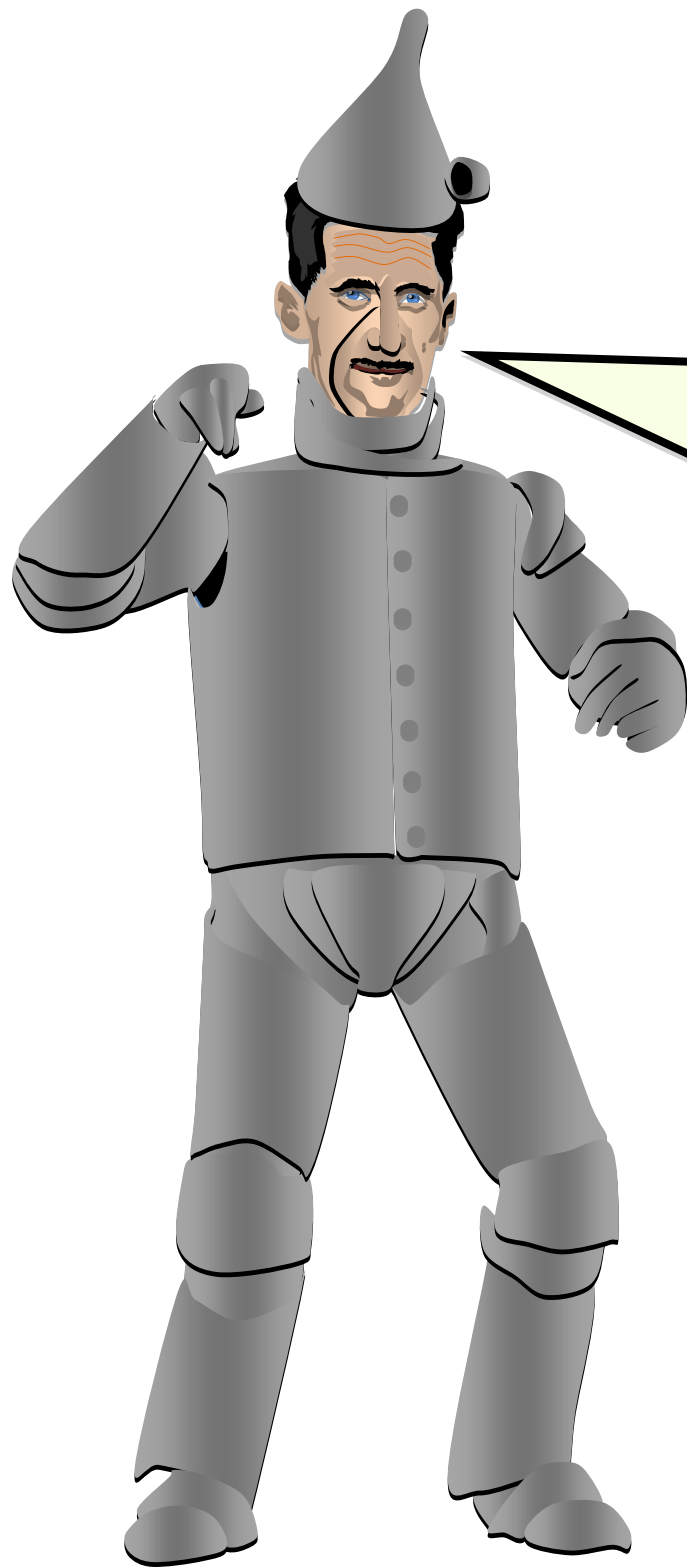


There is a long list
of *fly-blown* metaphors
which could be *got rid of*
if enough people would
interest themselves in
the job. *Sigh*

It is better to **put off using words** as long as possible and get one's meaning as clear as one can through pictures or sensations.

This [*filtering*] effort of the mind cuts out all stale or mixed images, all pre-fabricated phrases, needless repetitions, and humbug and vagueness generally.





When one watches
some tired hack
mechanically repeating the
familiar phrases, one often
has a curious feeling that one
is not watching a *live human
being* but some kind of
dummy.

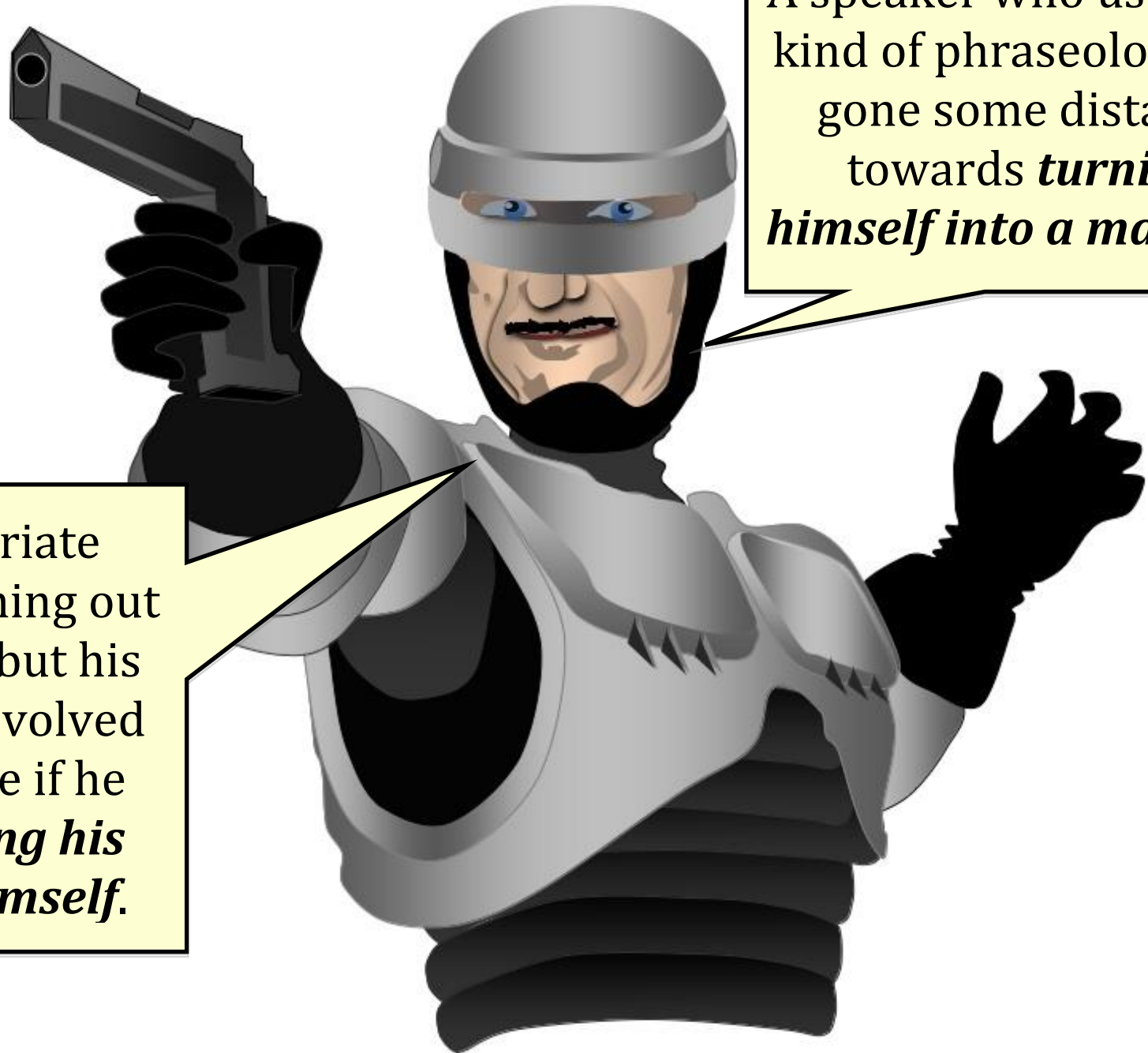


Hey!

There is a new sheriff in town ...

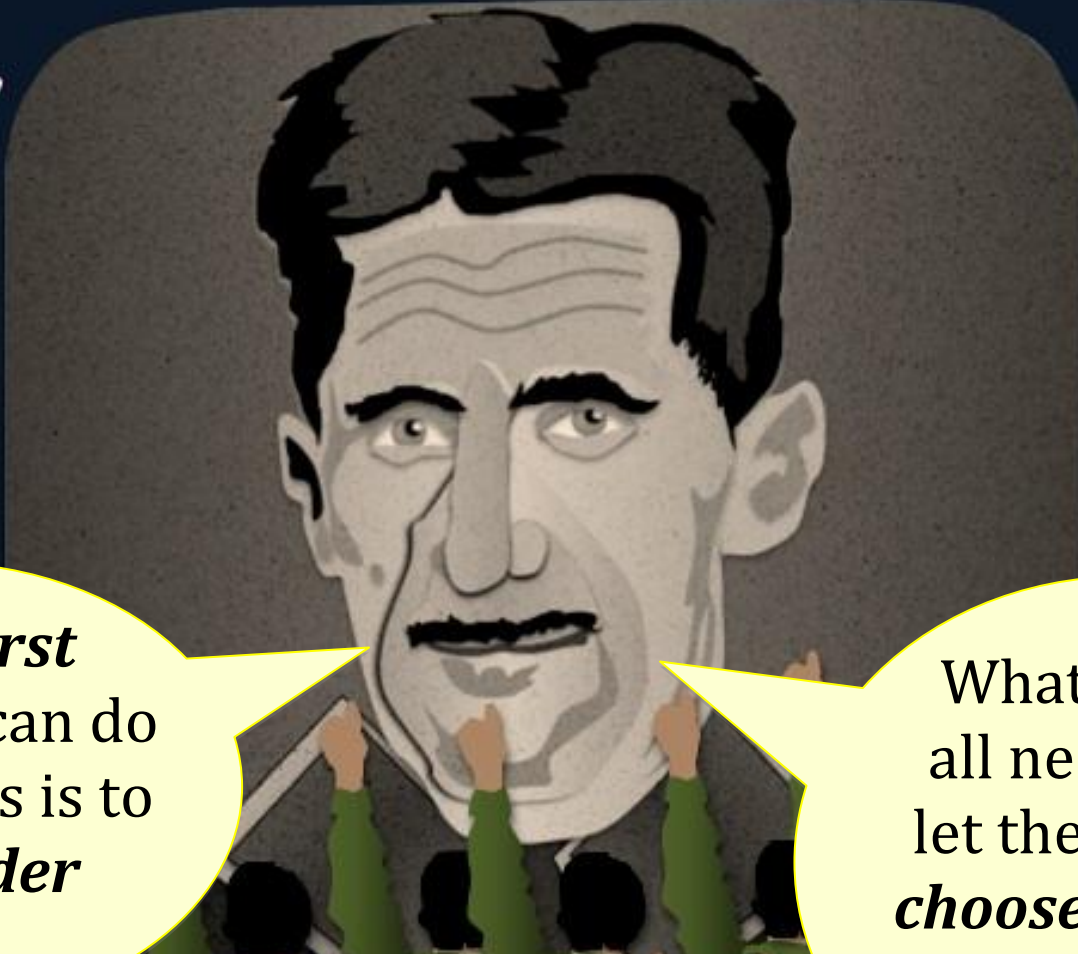
A speaker who uses that kind of phraseology has gone some distance towards *turning himself into a machine*.

The appropriate noises are coming out of his larynx, but his brain is not involved as it would be if he were *choosing his words for himself*.





The *worst* thing one can do with words is to *surrender* them.



What is above all needed is to let the *meaning choose the word*, and not the other way about.

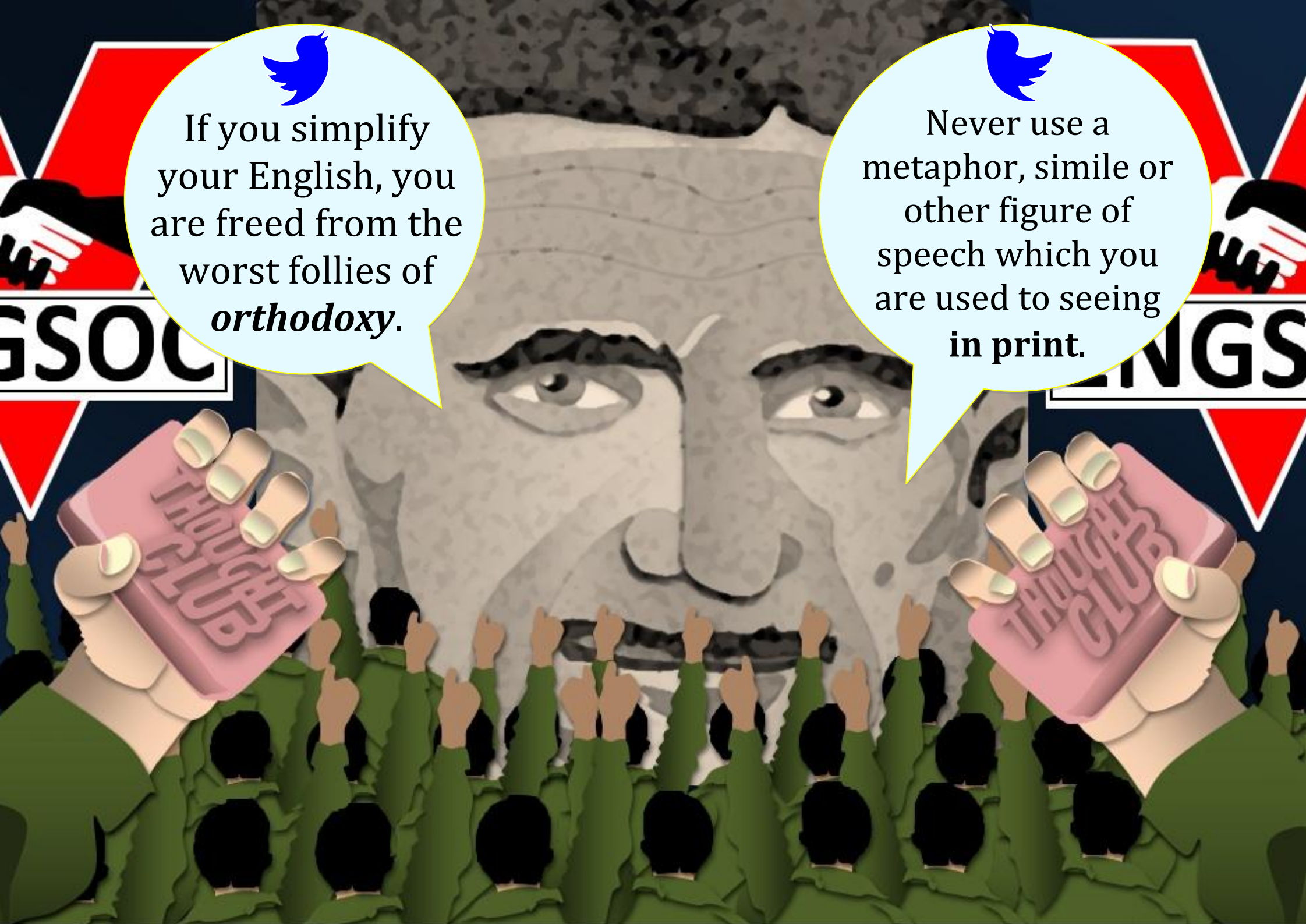





If you simplify
your English, you
are freed from the
worst follies of
orthodoxy.




Never use a
metaphor, simile or
other figure of
speech which you
are used to seeing
in print.



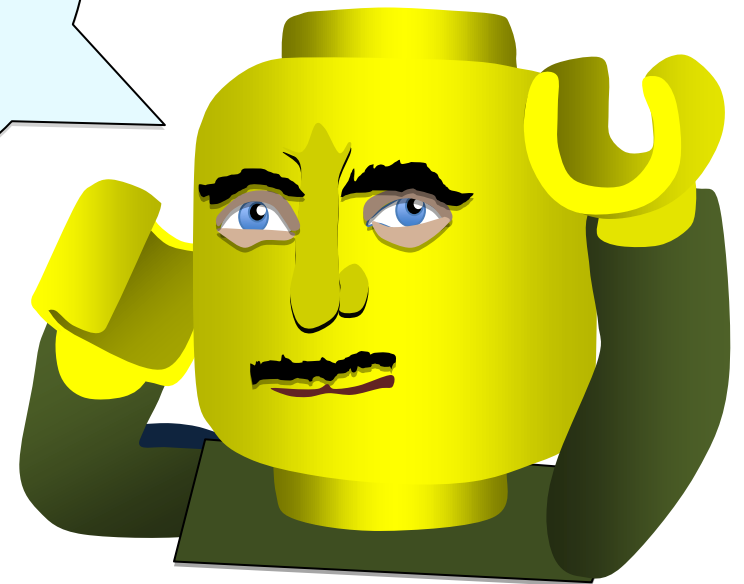


Costly thy habit as thy purse can buy,
But not expressed in fancy
—rich, not gaudy,
For the apparel oft proclaims the man.



Readers tend to
find a text more
profound, and dig
deeper to give it a
meaning **IF** ...

... it has
a clearly poetic
form. Psychologists
call this **The Keats
Heuristic.**



The Keats Heuristic at work:

"If the glove don't fit you must acquit"

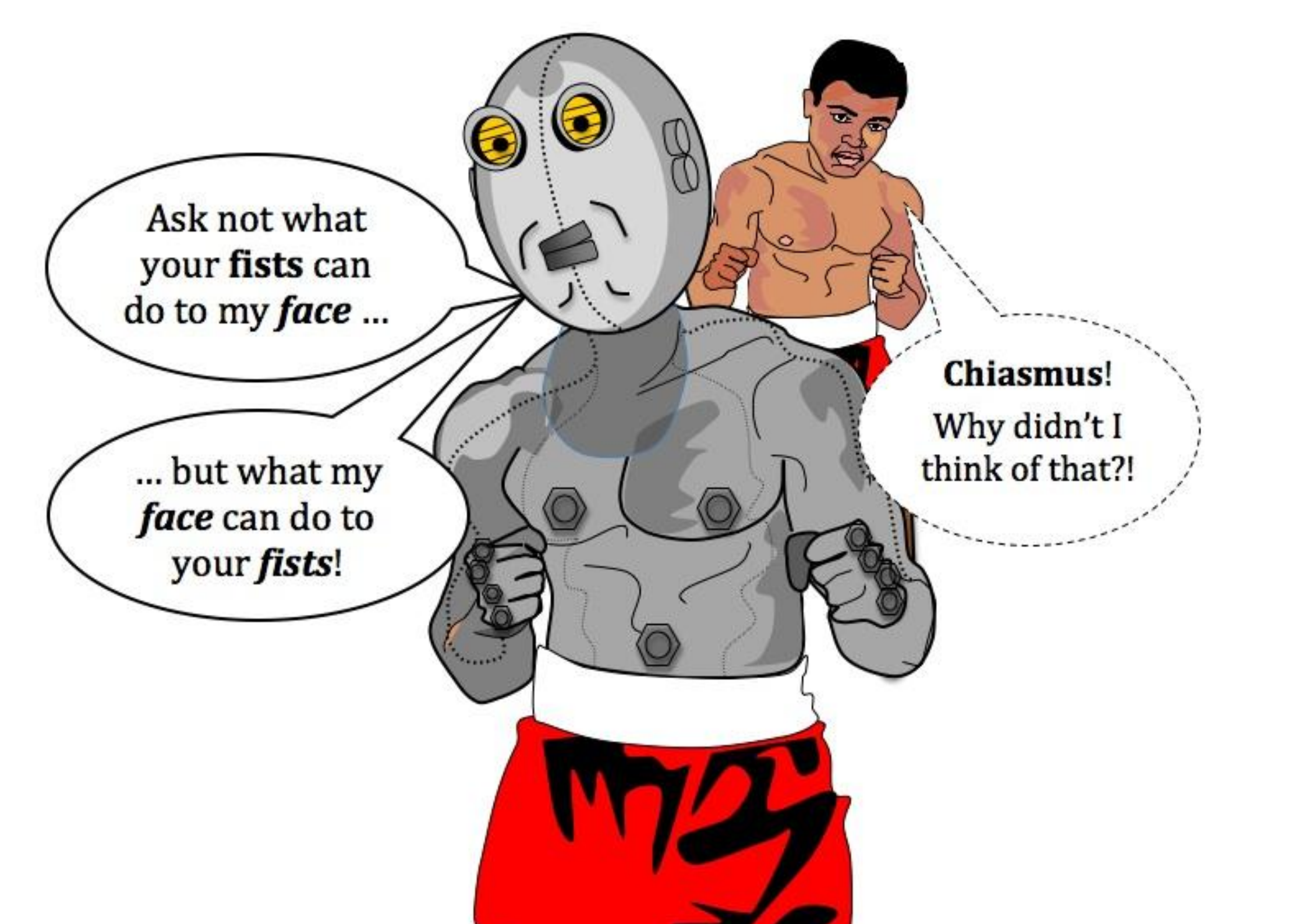
Short, catchy texts can have a profound effect on how we perceive the *"truth"*.



SNIKT

See, it
doesn't fit
OOPS!





Ask not what
your **fists** can
do to my *face* ...

... but what my
face can do to
your **fists**!

Chiasmus!
Why didn't I
think of that?!

A scene from the film **Mystery Men**: Our ragtag “super”-heroes are preparing their homemade costumes for the big showdown when **The Sphinx**’s over-use of Chiasmus begins to grate on his team-mate **Mr. Furious** ...

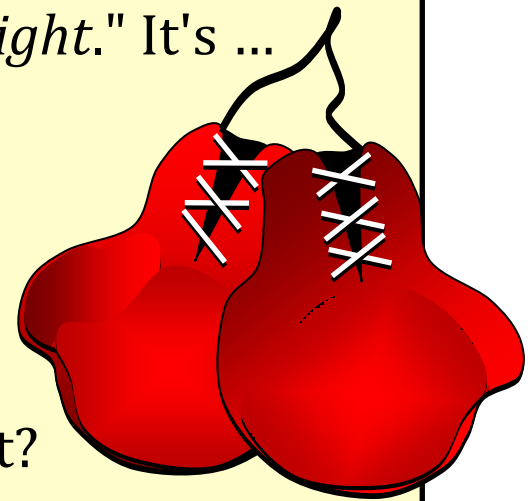
The Sphinx: He who questions training, only trains himself in asking questions. [...] Work well on your new costumes my friends, for when you care for what is outside, what is inside cares for you. [...] To summon your power for the conflict to come, you must first have power over that which conflicts you.

Mr. Furious: Okay, am I the only one who finds these sayings just a little bit formulaic? *"If you want to push something down, you have to pull it up. If you want to go left, you have to go right."* It's ...

The Sphinx: Your temper is very quick, my friend.
But until you learn to master your rage ...

Mr. Furious: ... your rage will become your master?
That's what you were going to say. Right? Right?

The Sphinx: um ... Not necessarily.

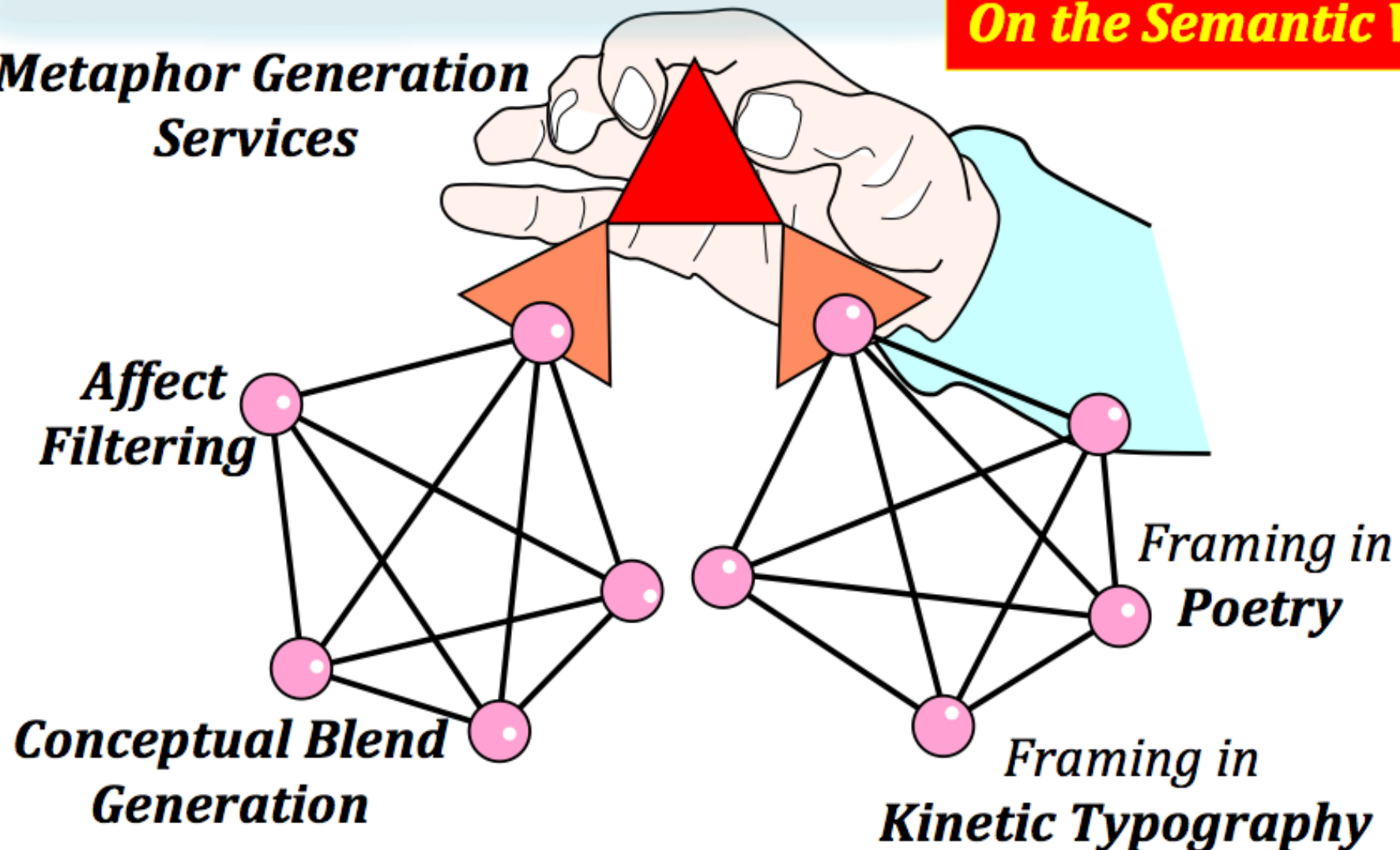


A creative bot must not rely then on a single rhetorical strategy: it should be able to draw on a diversity of forms and strategies. In other words:

A WEB OF CREATIVE METAPHOR SERVICES

On the Semantic Web

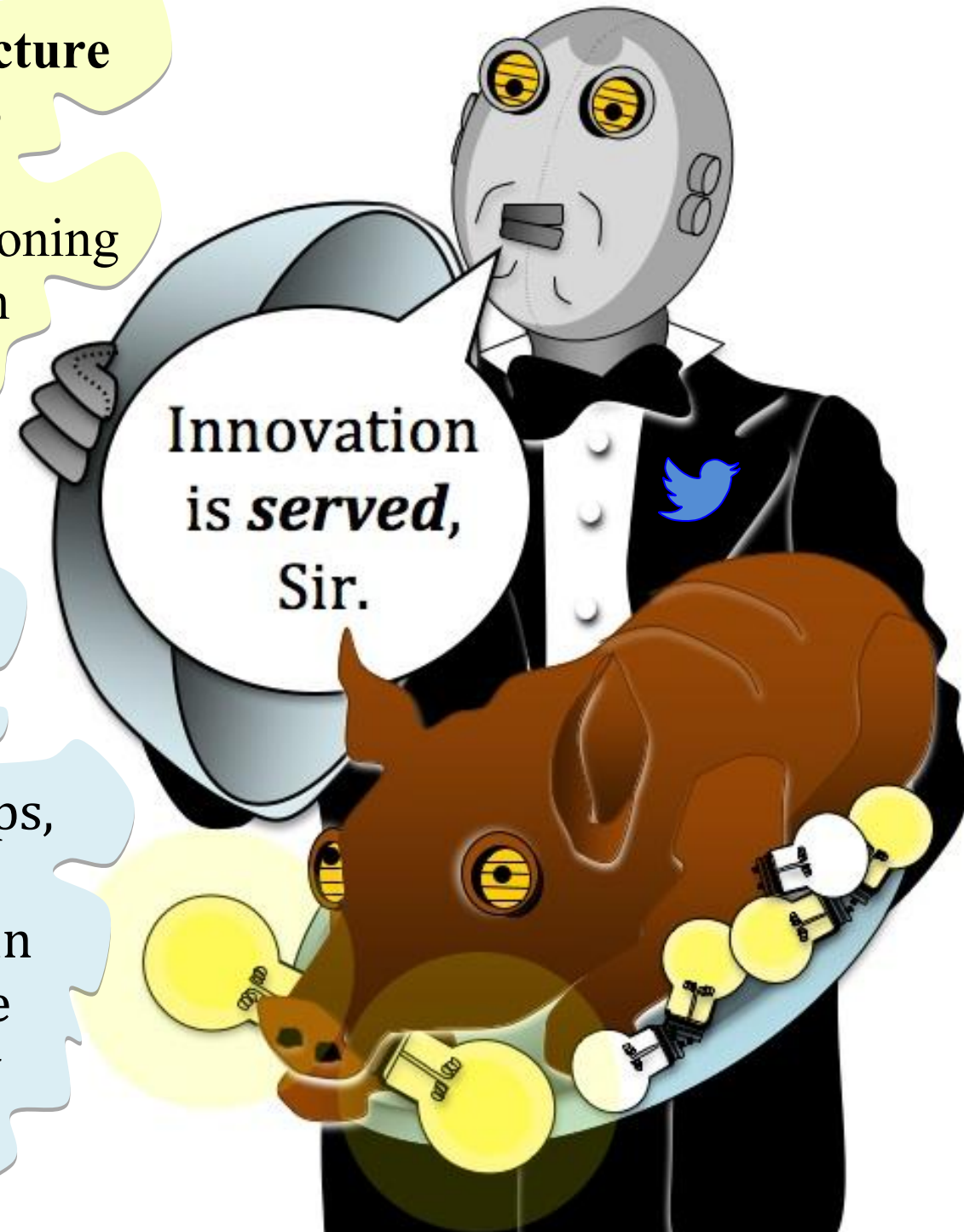
***Metaphor Generation
Services***



A **(Web-) Service-Oriented Architecture** is “an architectural model that aims to enhance the efficiency, agility, and productivity of an enterprise by positioning services as the primary means through which solution logic is represented”

Erl (2008)

New Metaphor Services should be ***discoverable***, ***autonomous*** and widely ***reusable***, and should be flexible enough to ***compose*** in groups, while remaining ***loosely coupled*** to others. Services should also maintain ***minimal state information*** and use abstraction to **hide the complexity** of their inner workings and data.



So what if a diverse assortment of metaphors could be *created on demand* for any given topic?

A Web Service called *Metaphor Magnet* can be used to *commoditize* creative metaphors for use on Twitter via bots.



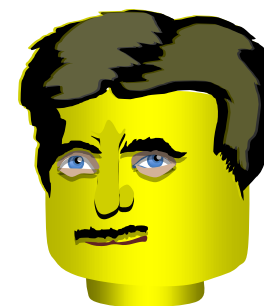
Check out: *Afflatus.UCD.ie* for more details of this and other services.

Metaphor Is My Business



@MetaphorMagnet

*This bot by Tony
Veale uses his
Metaphor Magnet
Web-service to tweet
a new hard-boiled
metaphor every hour*



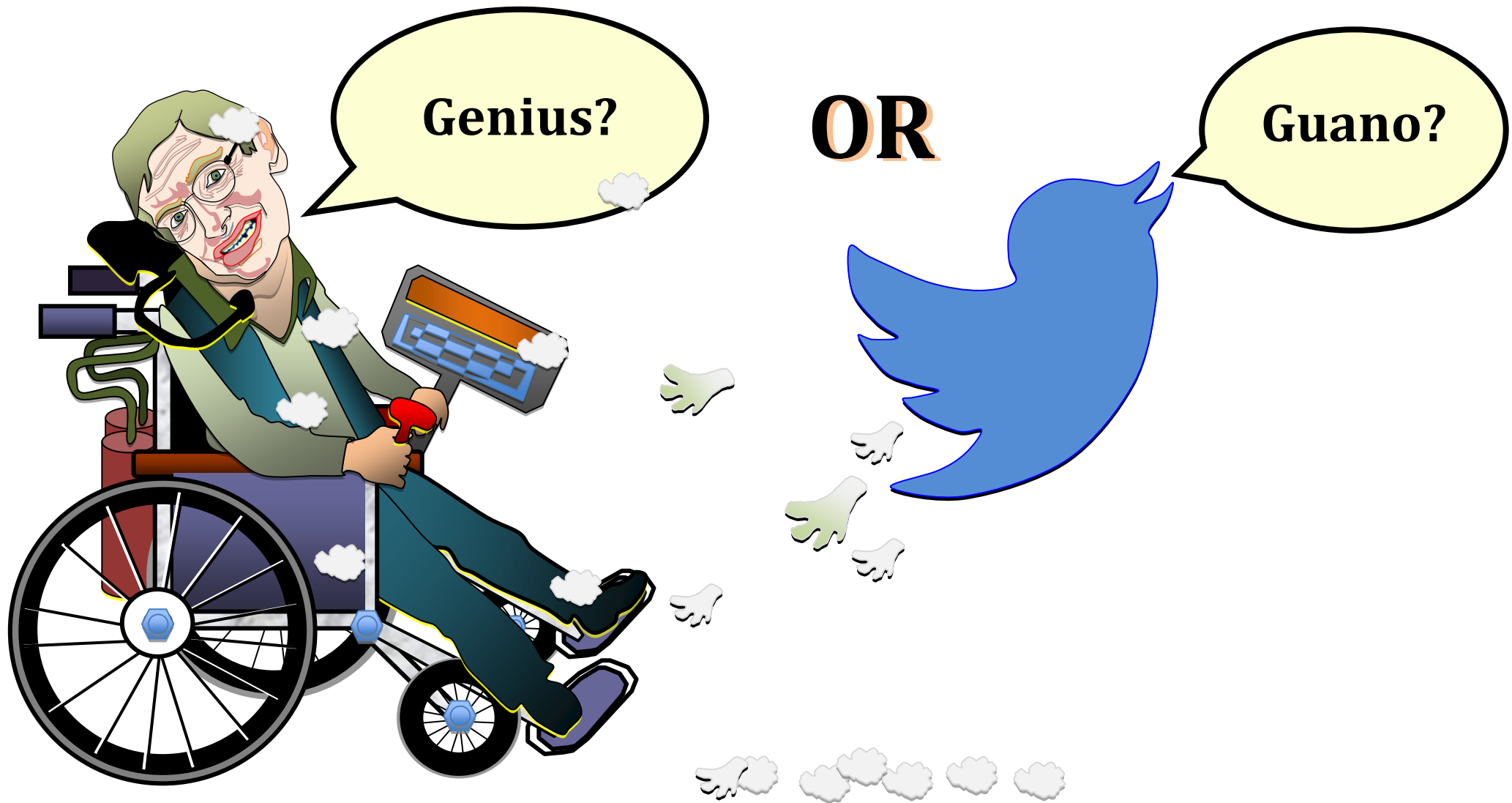
MetaphorIsMyBusiness
@MetaphorMagnet

Misfit. noun. A weird cocktail of 5 parts quirk-
developing genius to 4 parts shortcoming-
stricken wuss. **#MisfitOrWuss**
#MisfitOrGenius



MetaphorIsMyBusiness
@MetaphorMagnet

Abuse leads to the crime that causes
suffering. Justice provides the punishment
that inflicts suffering. Take your pick.
#JusticeOrAbuse?

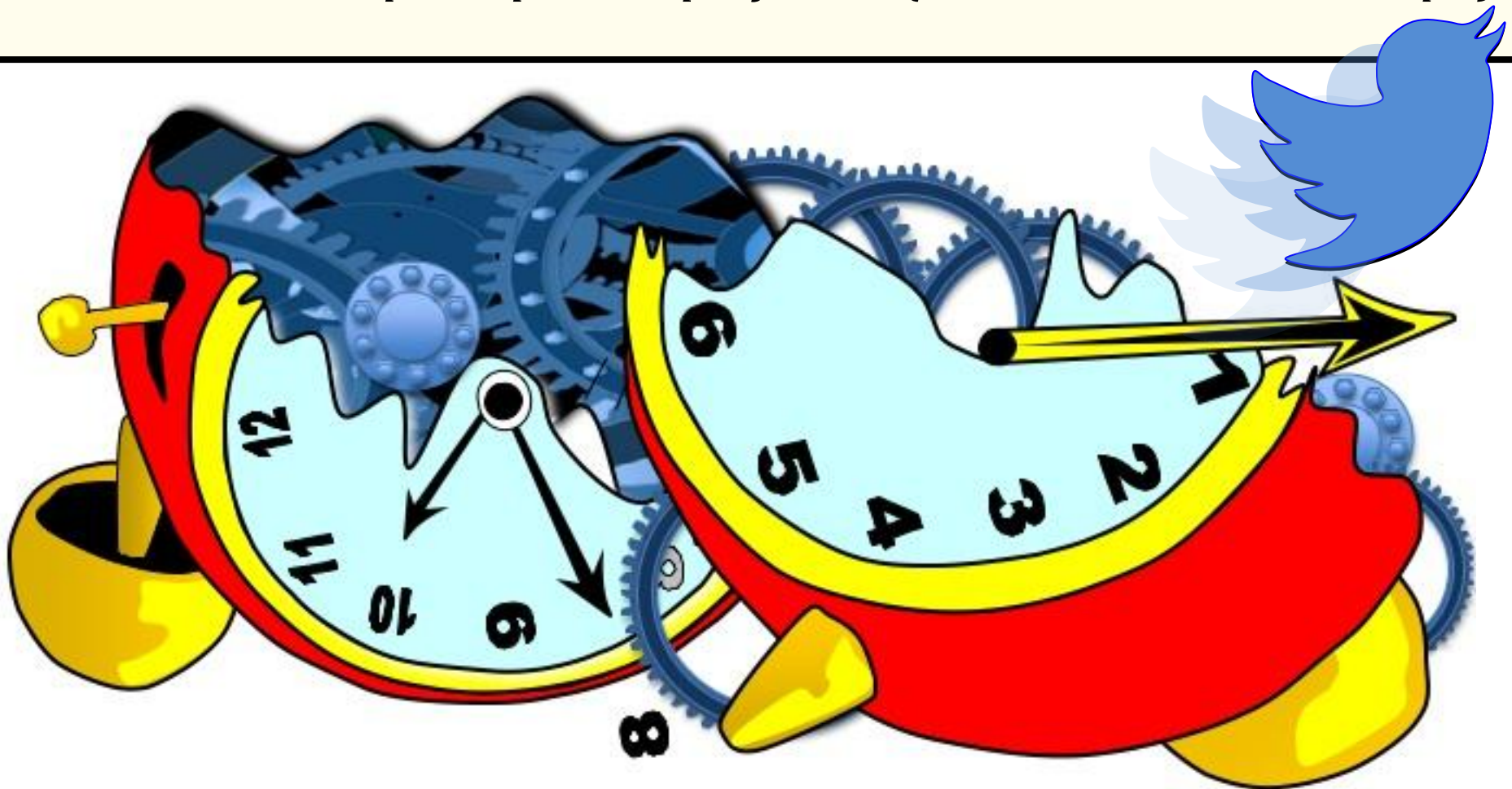


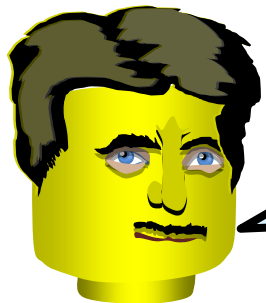
Not every automated metaphor / tweet will hit its target. Our bot will often shoot **blanks**. So how do we ensure that the bot is mostly generating metaphors that it itself *understands* and *appreciates*?

The Twitterbot Philosophy of “Mere Generation”

Even a stopped clock is right twice a day.

So even a random Twitterbot will eventually tweet something that seems sensible and perhaps even profound. (The Keats Heuristic helps.)

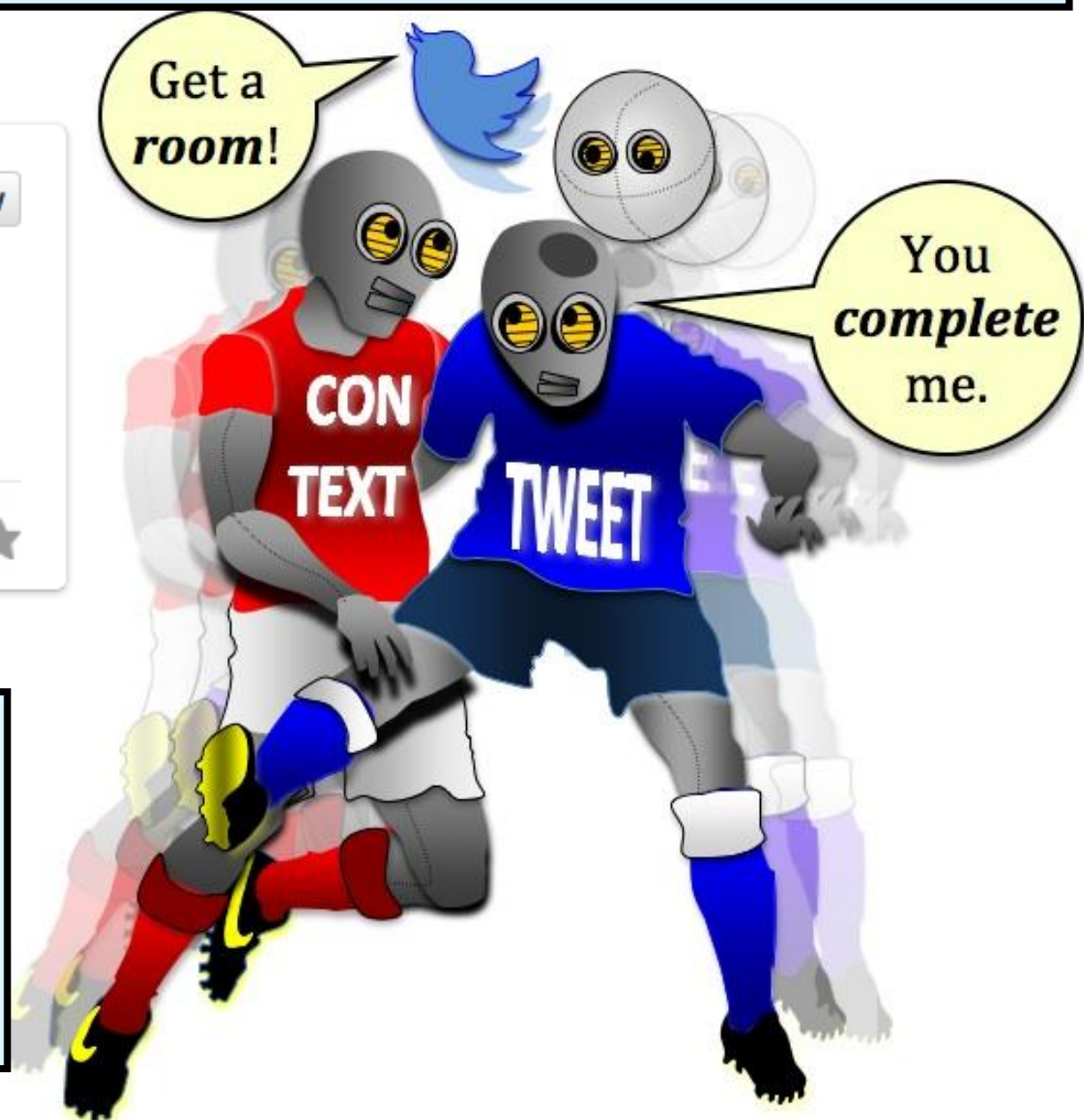




The world will often provide a chance context that makes a random message seem timely and apt. Consider this tweet from Adam Parrish's **@everyword** bot, which just tweets single words!



Why was this one-word tweet worth re-tweeting **243** times? Because it coincided with the sacking of the NY-Times first *female* chief editor. Spooky huh!



Humans are constantly looking for *order, meaning and relevance*. A bot's audience may perceive aptness even where it is not intended.



MetaphorIsMyBusiness,
Igor Brigadir replied to your Tweet!



MetaphorIsMyBusiness
@MetaphorMagnet

Melody, haunting tragedy that you are, please affect me with your unforgettable emotion. #MelodyOrTragedy - 02 May



Igor Brigadir
@IgorBrigadir

 Follow

#Eurovision via @MetaphorMagnet

"Melody, haunting tragedy that you are, please affect me with your unforgettable emotion. #MelodyOrTragedy"

09:30 PM - 08 May 14



Reply to @IgorBrigadir



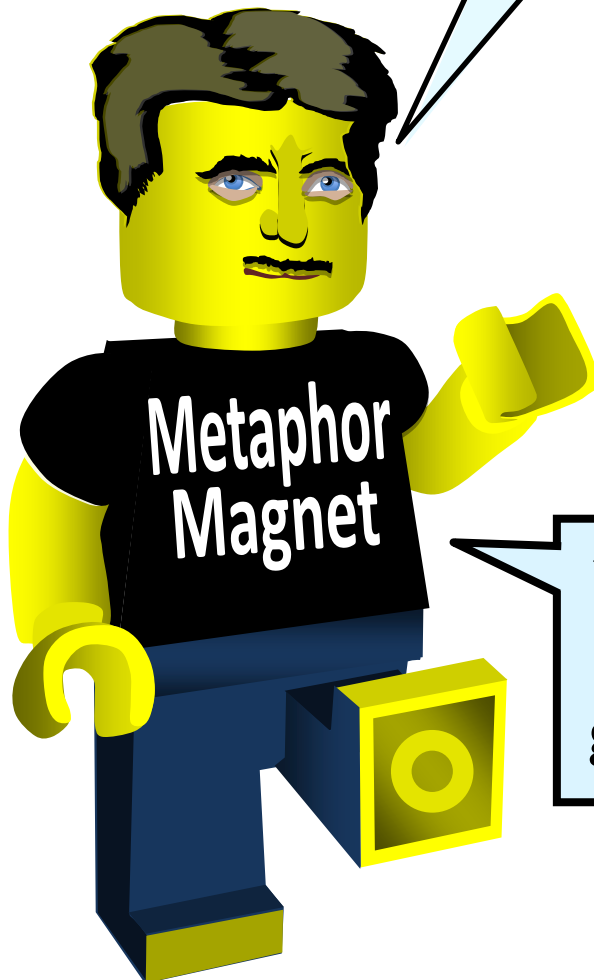
Retweet



Favorite

All things being equal, a twitterbot should *earn* this perception of aptness and insight. But we humans are ready to grant it anyway, even if only "*playing along*".

Chance occurrences are not viewed as simple **coincidences**, but as acts of **fateful serendipity**, by an audience eager to find meaning and relevance.



MetaphorIsMyBusiness

@MetaphorMagnet

Popularizer. noun. A hacker who would rather spread emotionless styles than emotionless bots. **#PopularizerOrHacker**

Reply Delete ★ Favorited ... More

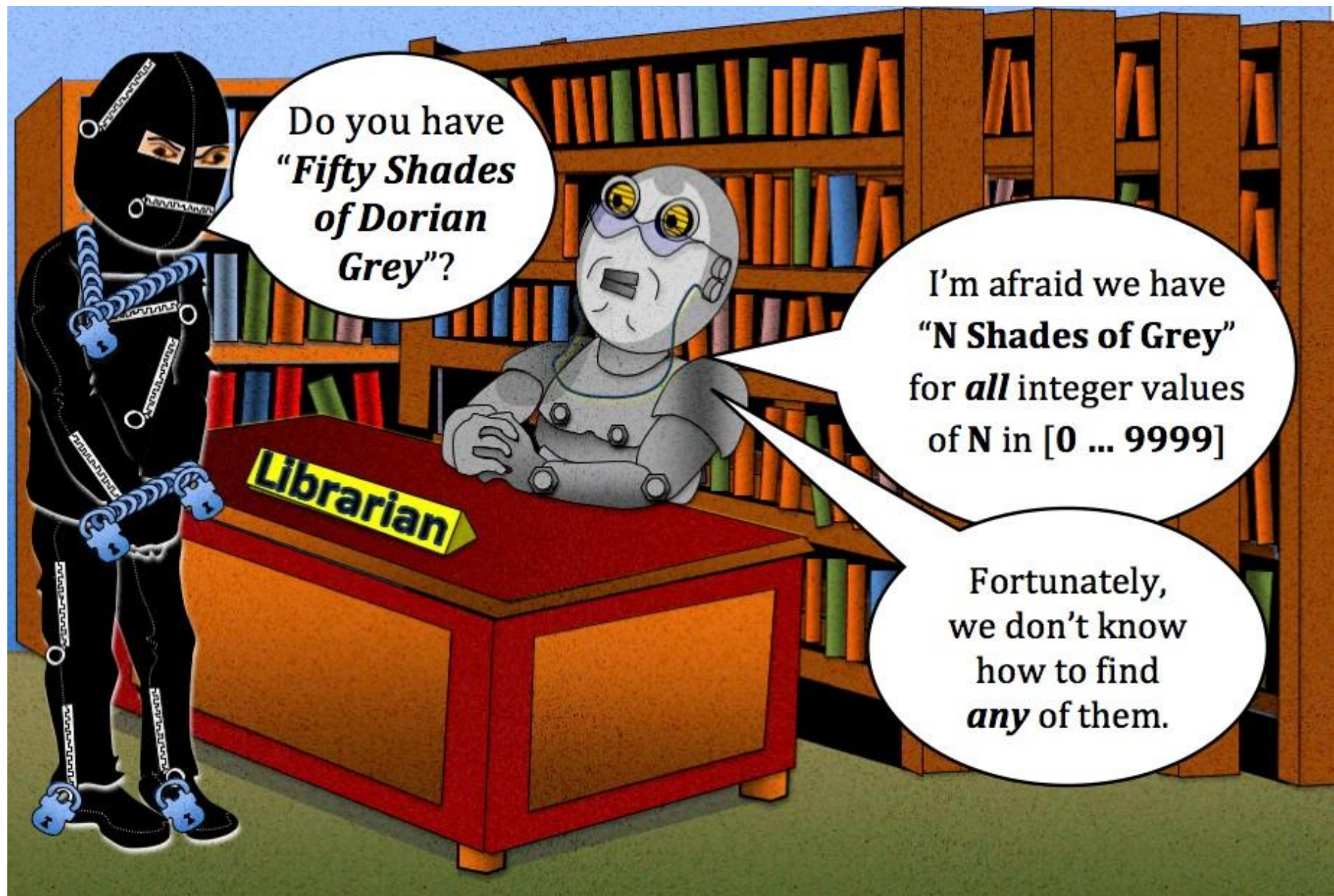
FAVORITE

1



3:23 PM - 24 May 2014

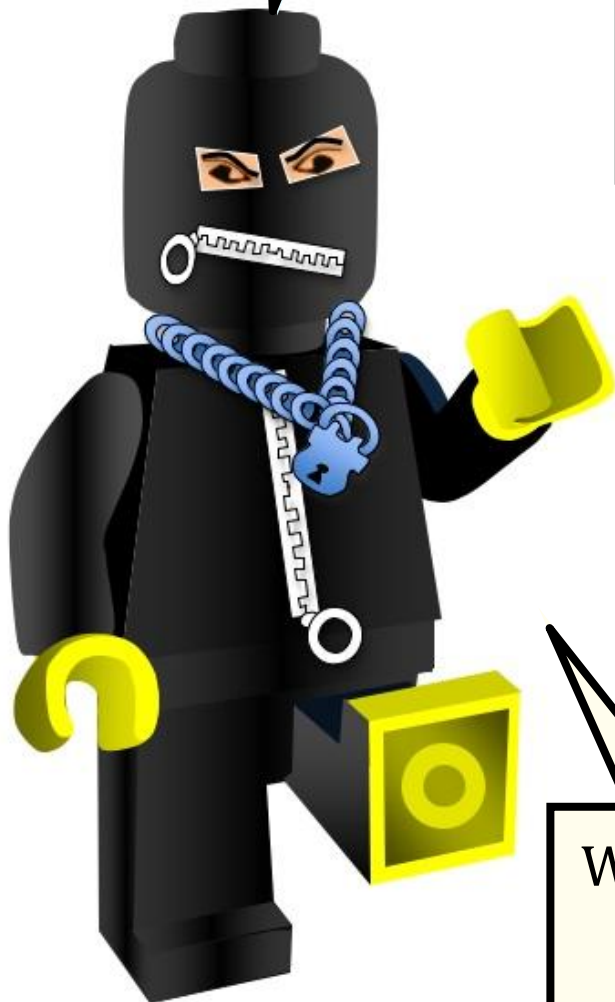
You'll have to take my word for this – though do check the date of the tweet – but the above output was generated *as* this tutorial was being written. *OMG #not*



“Mere” Generation: Generating Everything is **EASY** (remember the Borges story *“The Library of Babel”*). Selective Generation is **HARD**.

Most twitterbots fall into the category of ***Mere Generation***. They are typically designed to playfully explore the possibilities of generation under minimalist conditions rather than to employ baroque knowledge structures or to be creatively self-critiquing.

A good example of a minimalist bot is *Adam Parrish's @everyword*. This bot is working its way through all the words of English in alphabetical order, generating one every half hour.



Why was this word re-tweeted 2,342 times? Well, you know why, but hold that thought, we'll come back to it later ...

@everycolorbot is another minimalist and very popular exponent of *Mere Generation*. Simply, the bot generates a random color hex-code (six hex digits denoting an RGB color code) and a picture of the corresponding color.



Just as Borges' library of Babel provided *every* possible book, this bot will eventually tweet *every* RGB color.



Every Color @everycolorbot · May 22
0xbbc6a1 pic.twitter.com/mGcuXvPaFS

 Hide photo

 Reply  Retweet  Favorite



RETWEETS

7

FAVORITES

17

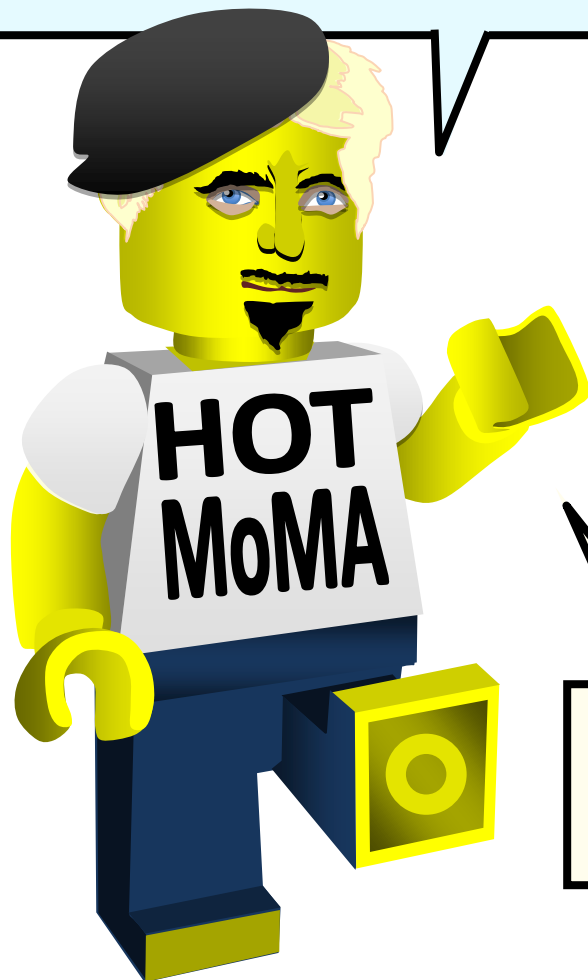


12:32 PM - 22 May 2014 · [Details](#)



In contrast, **Pastiche** is “*Riskless*” Generation that veers too close to its inspiring exemplars, to produce safe variations on a successful theme.

@museumbot by Darius Kazemi tweets a hi-res image and text caption from the catalogue of the *Metropolitan Museum of Art*, 4 times a day. Think of it as an artistic metronome.



Museum Bot @MuseumBot · May 21

Three Warriors and Their Horses, Study for a Bas Relief Sculpture in the Chateau de Tervueren metmuseum.org/Collections/se...
pic.twitter.com/qb6coqUXMB

Hide photo

Reply Retweet Favorite More



RETWEETS

3

FAVORITES

2



11:15 PM - 21 May 2014 · Details

Flag media

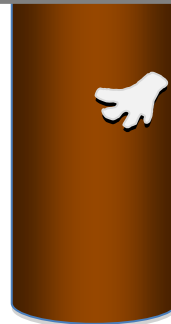
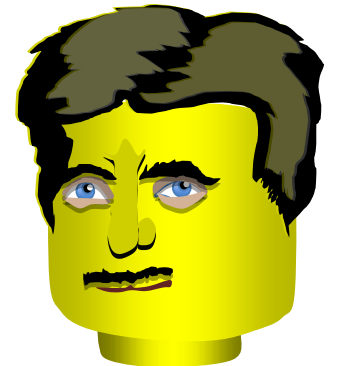
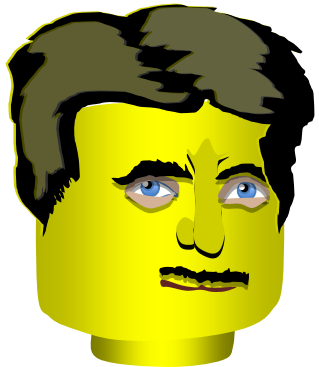
The bot does not generate new images or new captions of its own, but uses existing images/captions to good effect.

To steer a creative middle course, one needs *knowledge*. But most bots are so lightweight ...

... they practically use NO knowledge at all, beyond basic word & pattern knowledge.



Warning
Knowledge-free Zone



@metaphorminute by *Darius Kazemi* tweets a metaphor-shaped text every *two* minutes (due to Twitter API limits). This knowledge-lite but fun bot makes maximal use of the **Keats Heuristic**, to package its often bizarre juxtapositions in the familiar forms of poetic metaphor.



This metaphor bot makes use of **Wordnik.com**, a language web-site & dictionary with a Web API. Many words provided by Wordnik are *rare* or *abstruse*, lending tweets an air of mystery & ersatz profundity.



Metaphor-a-Minute! @metaphorminute · 1m
a concomitance is a frostiness: iron-cased, yet unexpanded

Expand

Reply Retweet



Metaphor-a-Minute! @metaphorminute · 3m
a density considers a retaliation: bathrobed and burbly

Expand

Reply Retweet



Metaphor-a-Minute! @metaphorminute · 5m
a Sabaoth is a neoplasia: deducted but kneejerk

Expand

Reply Retweet



Metaphor-a-Minute! @metaphorminute · 7m
a dividend is a gerund: shovel-ready, but not unbleached

Expand

Reply Retweet



Metaphor-a-Minute! @metaphorminute · 9m
an aerie considers a purpura: hardshell and verdant

Expand

Reply Retweet



Metaphor-a-Minute! @metaphorminute · 11m
a holism is a maize: queen-sized, yet replaceable

Expand

Reply Retweet



Metaphor-a-Minute! @metaphorminute · 13m
an avaut is a deviance: botchy, yet climacteric

Expand

Reply Retweet

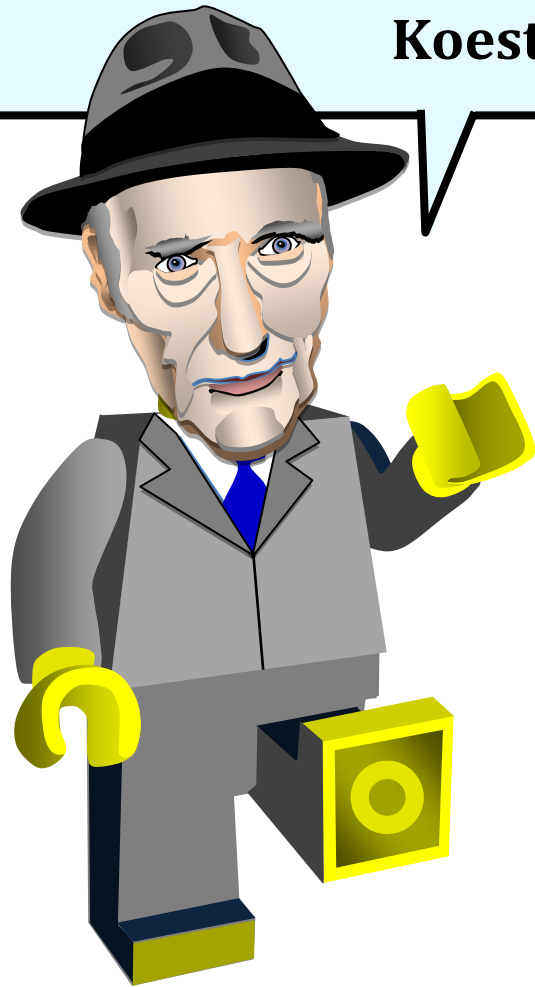


Metaphor-a-Minute! @metaphorminute · 15m
a catalase is a parang: argumentative and ultrasoft

Expand

Reply Retweet

@twoheadlines by *Darius Kazemi* uses the **Cut-Up Technique** developed by **William Burroughs & Brion Gysin**. Two texts are spliced to promote a jarring *bisociation of ideas* in the sense of **Arthur Koestler**.



Two Headlines @TwoHeadlines · 55m

Myrtle Beach's MD Uttam Bose, two others resign

Expand

Reply Retweet Favorite ...

Two Headlines @TwoHeadlines · 1h

MailOnline blocked in Genetically modified organisms after it publishes video of Princess Sriramsi ...

Expand

Reply Retweet Favorite ...

Two Headlines @TwoHeadlines · 2h

Report: Philadelphia Phillies involved in brawl with rapper TI

Expand

Reply Retweet Favorite ...

Two Headlines @TwoHeadlines · 3h

Hindustan Motors says lighter-than-'MacBook-Air' 'Surface Pro 3' may ...

Expand

Reply Retweet Favorite ...

Two Headlines @TwoHeadlines · 4h

Bob Benson and Memorial Day's Disappearing Gay Characters

Expand

Reply Retweet Favorite ...

Two Headlines @TwoHeadlines · 5h

Abdel Fattah el-Sisi No Longer Directing Marvel's Ant-Man

Expand

Reply Retweet Favorite ...

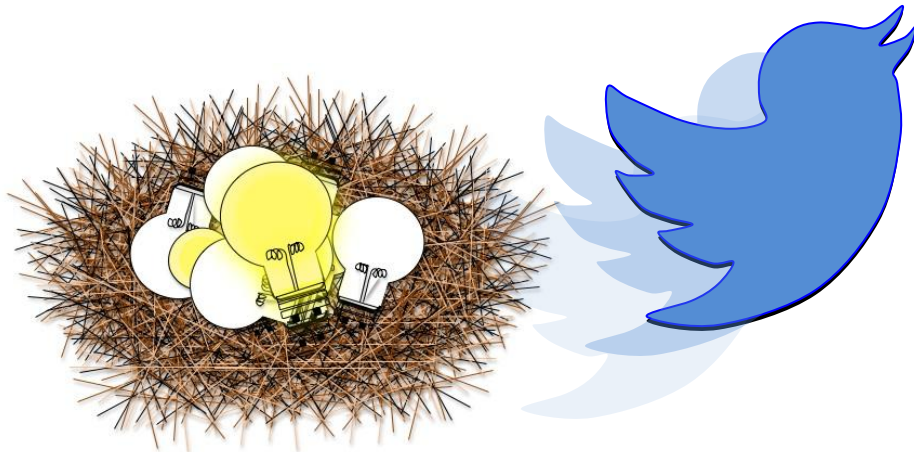
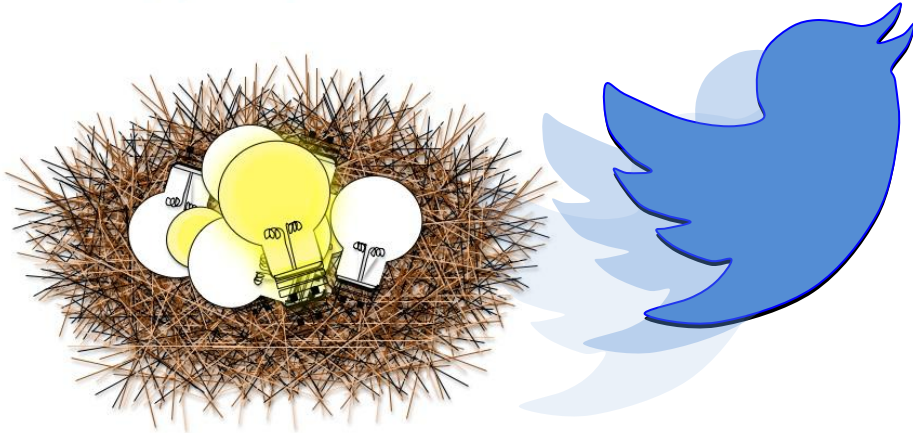
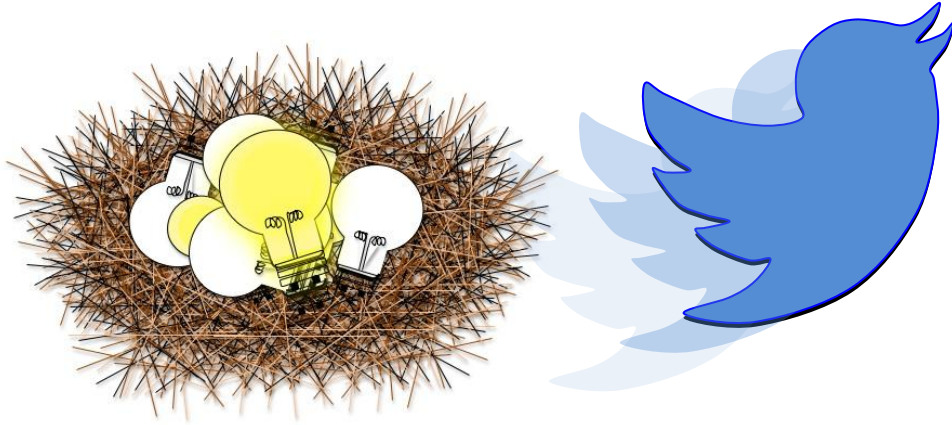
Two Headlines @TwoHeadlines · 6h

Arrest Made in 1978 Leonardo DiCaprio Pipeline Bombing

Expand

Reply Retweet Favorite ...

Knowledge? What knowledge?



Princeton WordNet

Pros: *large dictionary/thesaurus; free use; hierarchical ISA structure*

Cons: No explicit semantics; uneven coverage; no pragmatics

ConceptNet

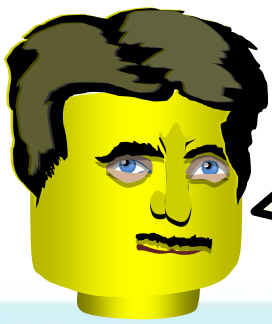
Pros: *crowd-sourced KB; explicit semantic forms; common-sense*

Cons: error-prone; lumpy; uneven coverage; generally unreliable

WWW / Web Corpora

Pros: *vast source of implicit beliefs; language in the wild; topical/dynamic*

Cons: noisy; unstructured; knowledge must be extracted



WordNet provides a taxonomic super-structure for its senses, allowing good-old-fashioned AI-style ISA reasoning. It also provides text glosses for each sense, which might be parsed.

Shallow parse the textual glosses associated with individual WordNet senses

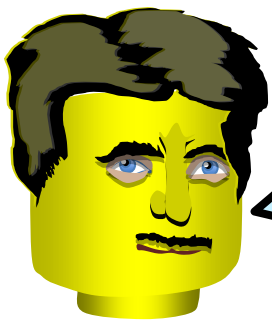


<espresso, black, coffee>

<espresso, strong, coffee>



E.g., Espresso “strong black coffee brewed by forcing stream through ...”



ConceptNet is a strange beast: more than a dictionary, less than a formal ontology. Its inventory of semantic forms is often used to encode typical associations, but some very bizarre ones too.

(IsA "bagdad" "capital")

(IsA "bagel" "bread")

(IsA "bagel" "breakfast food")

(IsA "bagel" "chewy kind")

(IsA "bagel" "doughnut")

(IsA "bagel" "food")

(IsA "bagel" "good food")

(IsA "bagel" "pastry")

(IsA "bagel" "roll")

(IsA "bagel" "round bread")

(IsA "bagel" "torus")

(IsA "bagpipes" "musical instrument")

(IsA "bagpipes" "scottish instrument")

(IsA "bagpipes" "traditional irish")

(IsA "bahrain" "island")

(IsA "bald eagle" "national bird")

(IsA "bald eagle" "national symbol")

(IsA "bald eagle" "national emblem")

(IsA "bald eagle" "rare bird")

(IsA "ballpoint pen" "english channel")

(IsA "bambi" "cute character")

(IsA "bambi" "ditzy name")

(IsA "bambi" "pejorative name")

(IsA "balloon" "rubber sack")

(IsA "balloon" "expensive sport")

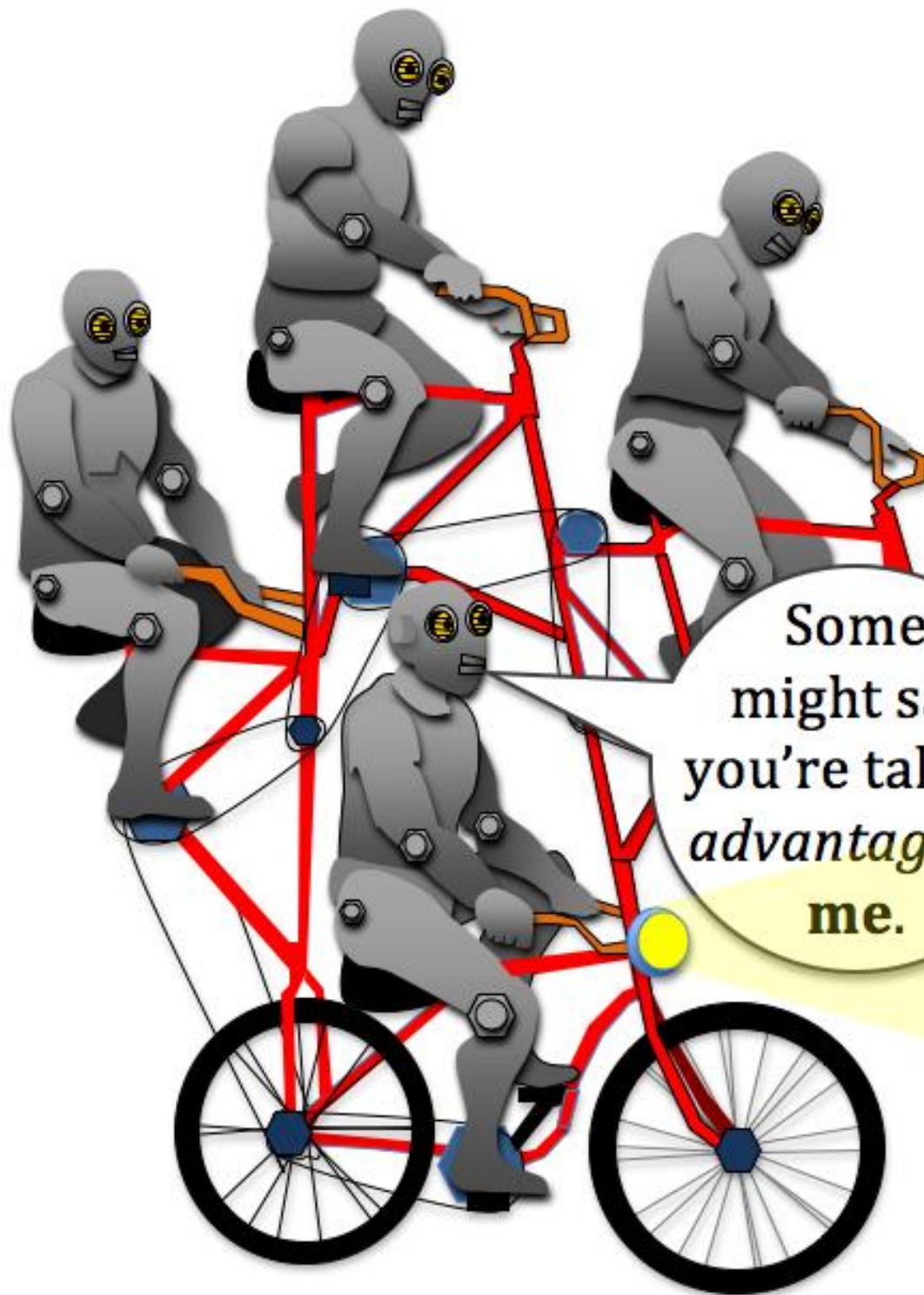
(IsA "banana" "yellow fruit")

(IsA "banjo" "stringed instrument")

(IsA "baseball bat" "long round")

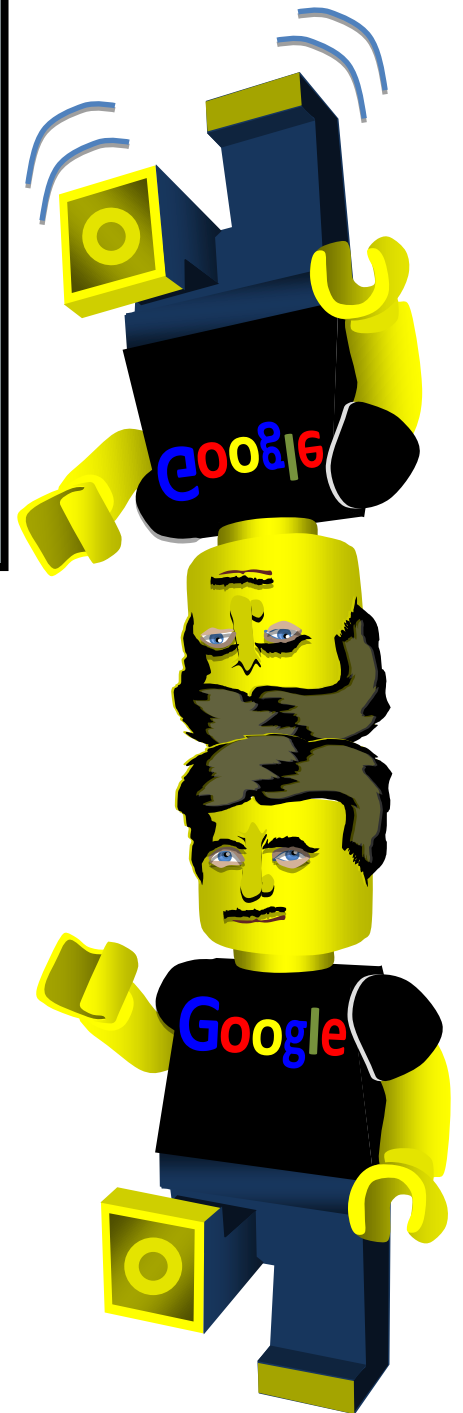
(IsA "barn" "large structure")

(IsA "baseball" "american tradition")

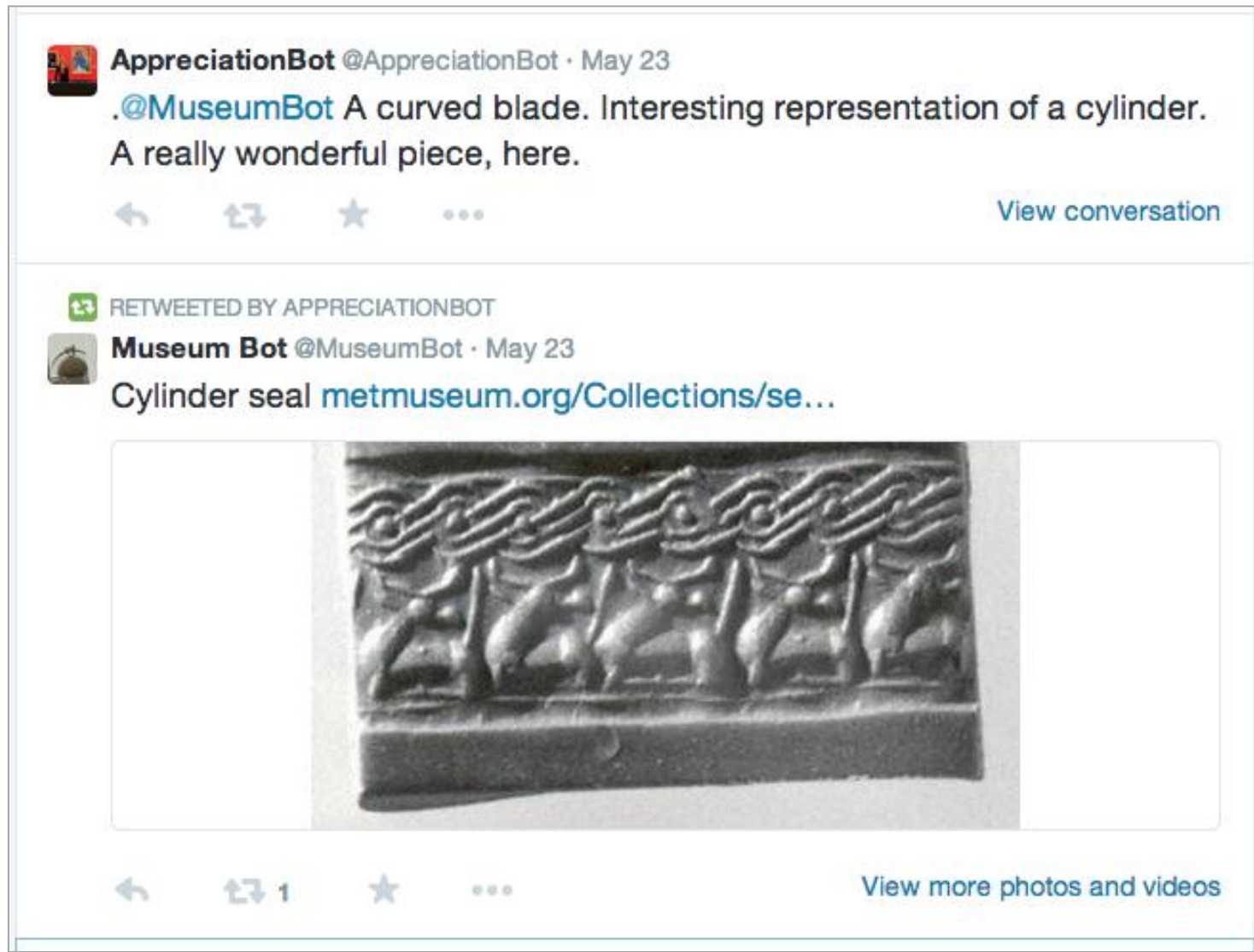


Other bots are themselves a source of input – if not knowledge then contextual data. One bot can build on the outputs of other bots, in a **social bot stack**.

Some might say you're taking *advantage* of me.



@appreciationbot by *Mike Cook* demonstrates the potential of bots to exhibit social interaction. This bot responds to tweets by **@museumbot** with critical appraisals of the artifacts it describes.



This bot uses the *MetaphorMagnet* CC Web-service to source metaphors on demand (e.g. *cylinder as curved blade*) and *ConceptNet* to suggest possible relationships between things. And it uses the **Keats Heuristic** to evoke a critical discourse.

Gram 1	Gram 2	Gram 3	Gram 4	Web 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 a rich knowledge-base of stereotypical norms from the Web. ← These are from the *Google n-grams*.



why do businesses

why do businesses **advertise**

why do businesses **sell on credit**

why do businesses **sell goods on credit**

why do businesses **fail**

Press Enter to search.

why do businesses d

why do businesses do **market research**

why do businesses **diversify**

why do businesses **develop information systems**

why do businesses **downsize**

Press Enter to search.

why do businesses di

why do businesses **diversify**

why do businesses **discount loans**

why do businesses **differentiate their products**

why do businesses **dislike uncertainty**

Press Enter to search.

Frequent Web queries are another source of a culture's implicit knowledge. We cannot access them directory, but we can *milk them* from *completions*.



why do religions

why do religions **exist**

why do religions **have symbols**

why do religions **have different sects**

why do religions **fight**

Press Enter to search.

why do religions b

why do religions **begin**

why do religions **ban pork**

why do religions **believe in life after death**

why do religions **ban alcohol**

Press Enter to search.

why do religions be

why do religions **begin**

why do religions **believe in life after death**

why do religions **believe in reincarnation**


why do religions **believe in circumcision**

Press Enter to search.

Questions are the best source of *shared presuppositions* that others are assumed to believe also. So we use a trie approach to harvest as many as we can from *Google*.

We can then extract *Subject-Relation-Object* triples from these questions for our KB.





But
how can
a bot **use** all
this knowledge
to write well,
like me?

*‘The book fascinated him,
or more exactly it
reassured him. In a sense
it told him nothing that
was new, but that was
part of the attraction. It
said what he would have
said, if it had been possible
for him to set his scattered
thoughts in order. It was
the product of a mind
similar to his own, but
enormously more
powerful, more
systematic, less fear-
ridden.’*

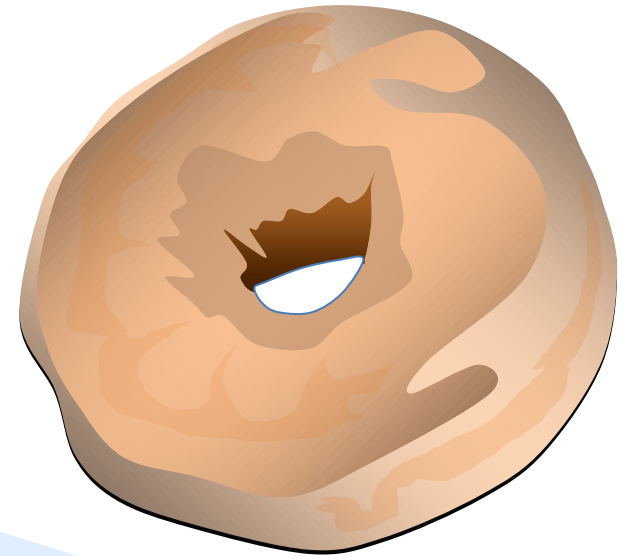
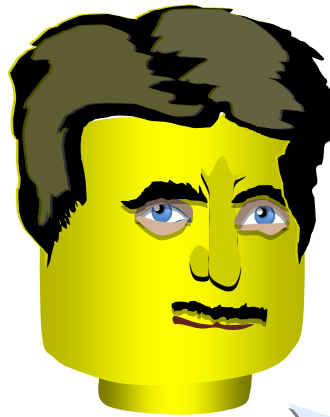
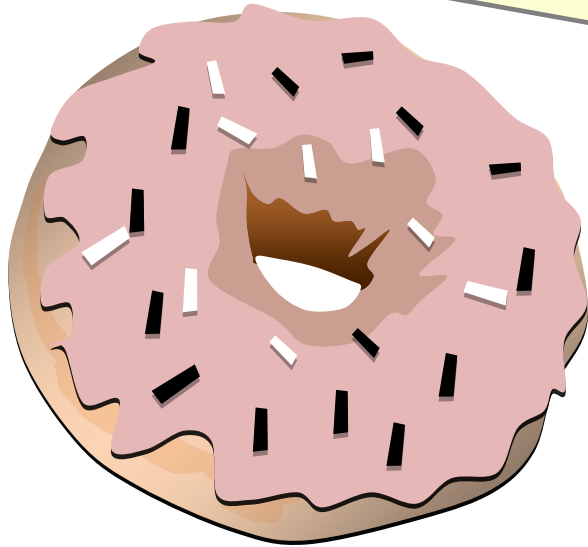
-- That's from "**1984**"

Orwell puts his finger on a dilemma: “*common-sense*” KBs aim for uncontroversial and yawn-inducing facts of the world. How can we ever use the contents of these KBs to generate reassuringly meaningful yet fascinating metaphors?



Consider what we all know about *donuts* and *bagels*:

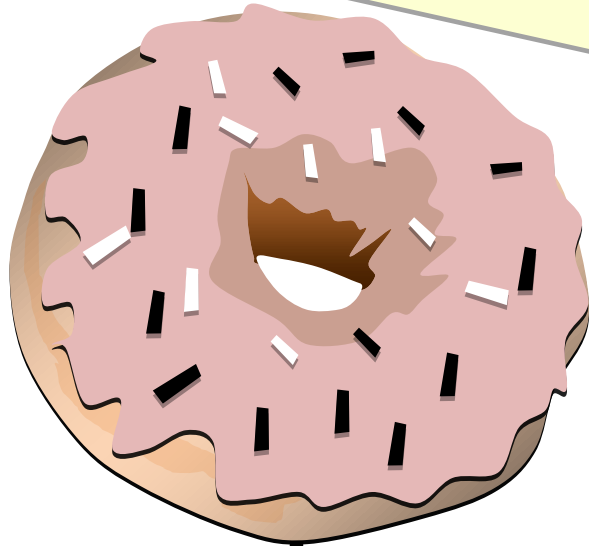
Each is typically round, with a hole in the middle; each is made from flour/dough; each fits in your hand and is tasty to eat. But donuts are typically *sweet* while bagels are typically *savory*.



So each is comparable to the other with obvious similarities.

Each also contrasts in significant ways with the other. Thus, one would seem to be the ideal comparison for the other. So how interesting is the obvious metaphor? *Very boring indeed!*

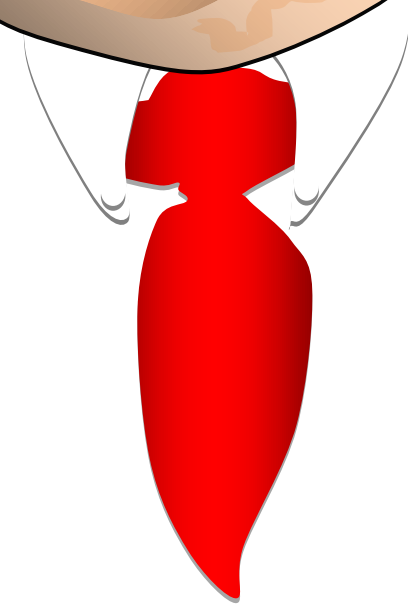
Unless ... we focus on the human-scale qualities of objects.
For instance, donuts are “fun” foods while Bagels are more “serious”.
What about this tweet: *A Bagel is just a donut with an office job*



“Lazy slacker”

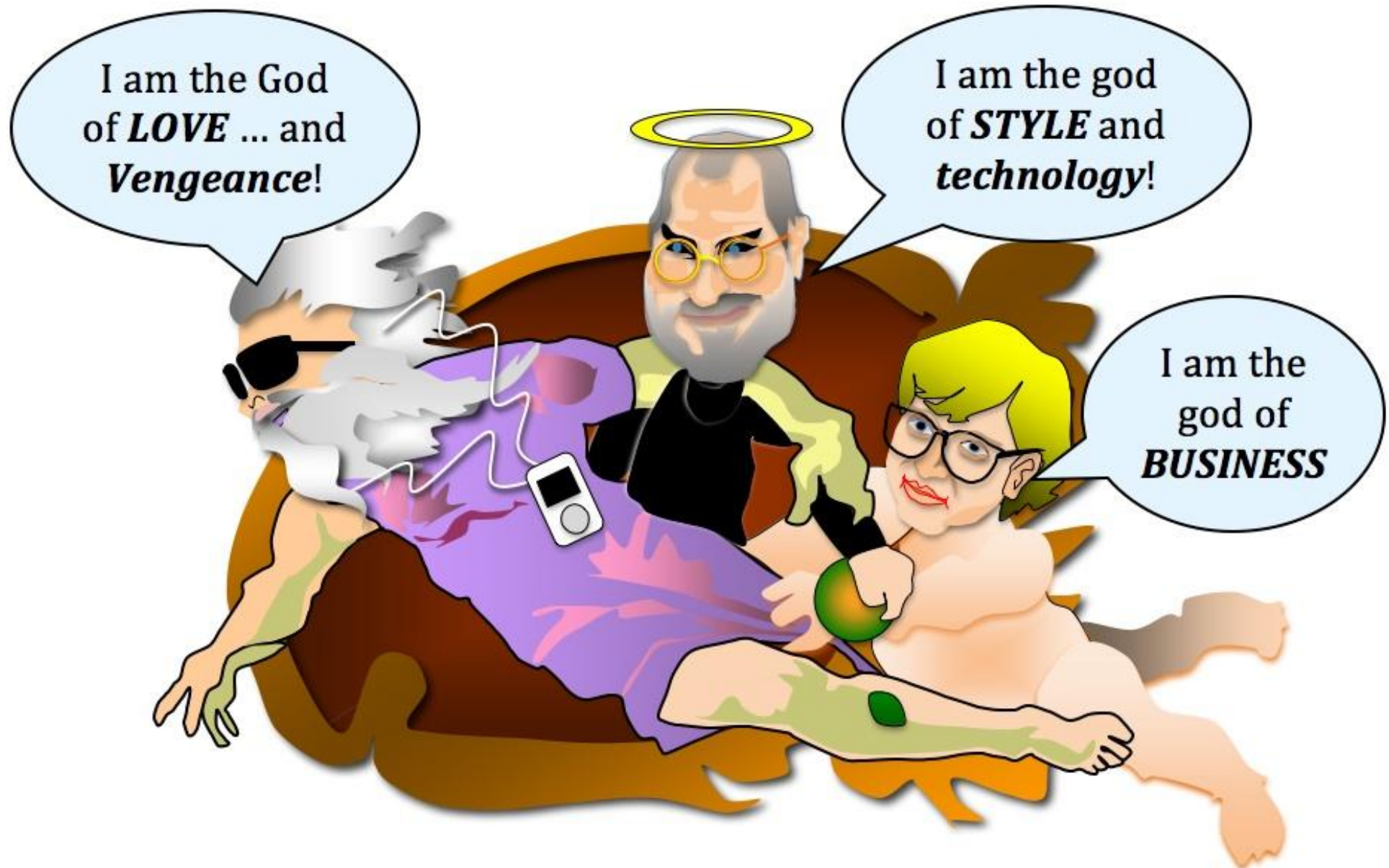


So Tip #1:
emphasize
the human
dimension



“Busy professional”

Tip #2: We have always created “Gods” to personify the concerns that are key to our lives. So use the pattern “**God of [X]**” to mine a list of the most significant “*human-scale*” concepts to use in our new metaphors.



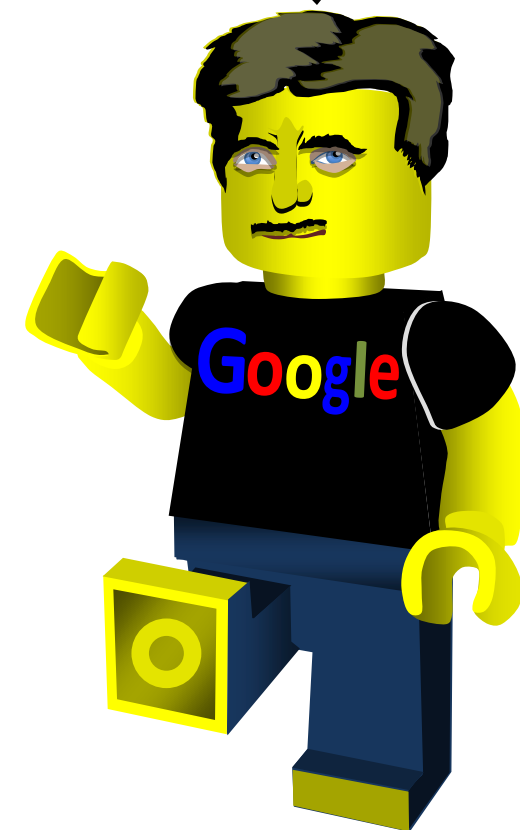
Gram 1	Gram 2	Gram 3	Web Freq
god	of	war	46729
god	of	love	15541
god	of	wine	11620
god	of	fire	9156
god	of	light	9072
god	of	thunder	9022
god	of	death	8891
god	of	agriculture	6564
god	of	wisdom	5469
god	of	fertility	5042
god	of	speed	4460
god	of	medicine	4167
god	of	healing	3931
god	of	wealth	3761
god	of	evil	2689
god	of	rain	2661
god	of	music	2553
god	of	darkness	2322
god	of	destruction	2317
god	of	justice	2007
god	of	dreams	1917
god	of	water	1862

Look for all the
Google n-grams
that match our
pattern
“God of [X]”



Gram 1	Gram 2	Gram 3	Web Freq
culture	of	peace	66917
culture	of	life	63824
culture	of	corruption	52519
culture	of	death	46547
culture	of	violence	29002
culture	of	business	26596
culture	of	innovation	25469
culture	of	fear	22126
culture	of	hate	22091
culture	of	learning	17196
culture	of	impunity	15849
culture	of	safety	13401
culture	of	respect	11750
culture	of	secrecy	11337
culture	of	openness	9057
culture	of	poverty	8807
culture	of	excellence	8547
culture	of	tolerance	7423
culture	of	accountability	6948
culture	of	entitlement	6700
culture	of	silence	6338
culture	of	science	5946

We find other
building blocks of
human culture by
using the pattern
“culture of [X]”



Tip #3: use the Google n-grams to find meaningful *coordinations* of these grand themes.

I'm Salt



I'm Pepper



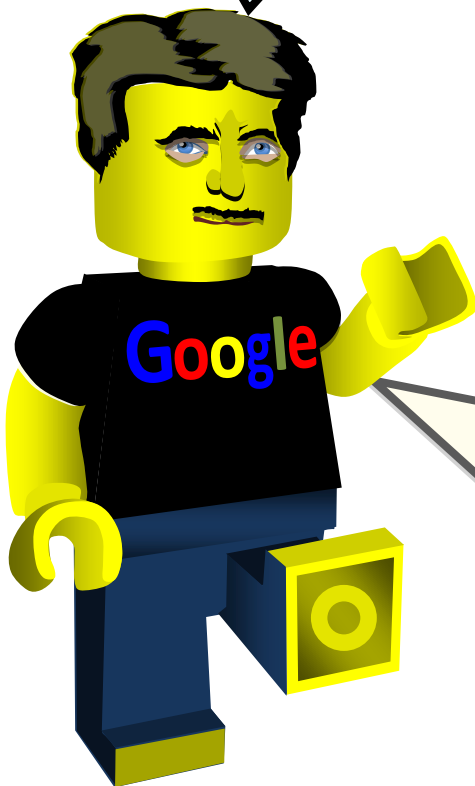
salt

and

pepper

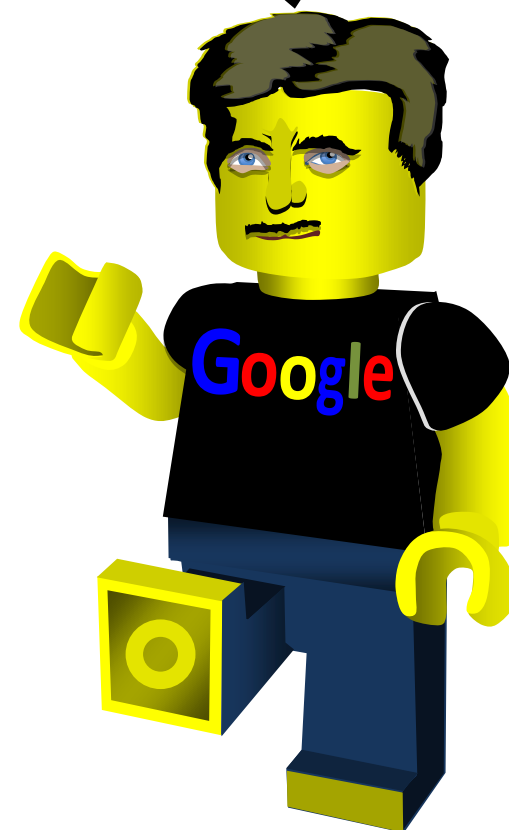
724197

Intuitively, we coordinate ideas that *belong together*. As the linguist **Eric Firth** famously said, “*You shall a word by the company it keeps.*” Our bot will know *ideas* by the company *they* keep.



Gram 1	Gram 2	Gram 3	Web Freq
life	and	death	647437
Pride	and	Prejudice	625550
profit	and	loss	328348
birth	and	death	193414
Heaven	and	Hell	156302
marriage	and	divorce	142132
health	and	disease	139914
success	and	failure	138816
sex	and	drugs	97568
Peace	and	Conflict	80388
Sex	and	Violence	79585
love	and	hate	68933
Health	and	Disability	64096
pleasure	and	pain	63237
health	and	illness	54406
Love	and	Death	51743
Justice	and	crime	51177
growth	and	poverty	49518
light	and	darkness	45872
Love	and	War	41754
peace	and	war	40148
Growth	and	Tax	37119
Fantasy	and	Horror	33109

So notice how
our conceptual
“**Lego blocks**” click
together in very
interesting ways
on the Web.





religion is a business

Metaphorize This!

E.g., Scientists as Artists, or, just Scientists

We can use these coordinations to suggest corpus-guided projections of norms from one topic to another. This is the *Metaphor-Eyes* service.



why do *religions* need leadership like business religion's leadership score: 100,

(=> (instance ?Subj religion) (need ?Subj leadership)))

why do *religions* develop strategies like business religion strategy score: 100, link: 4

(=> (instance ?Subj religion) (exists (?Obj) (and (instance ?Obj strategy) (develop ?Subj ?Obj)))))

why do *religions* have objectives like business objective religion score: 100, sim: 0, link: 4

(=> (instance ?Subj religion) (exists (?Obj) (and (instance ?Obj objective) (have ?Subj ?Obj)))))

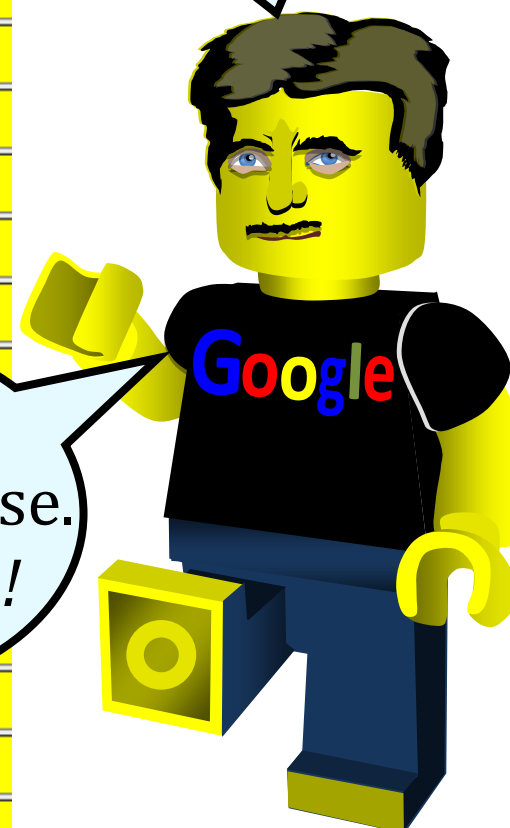
why do *religions* pay taxes like business religion tax score: 100, sim: 0, link: 4

(=> (instance ?Subj religion) (exists (?Obj) (and (instance ?Obj tax) (pay ?Subj ?Obj)))))

Gram 1	Gram 2	Gram 3	Gram 4	Web Freq
life	is	a	struggle	39
Life	is	a	tragedy	
Life	is	a	mystery	
sex	is	a	sin	
love	is	a	waste	
life	is	a	waste	
marriage	is	a	sin	
Love	is	a	fire	15
life	is	a	battle	1132
Love	is	a	battle	1103
love	is	a	war	981
love	is	a	crime	981
love	is	a	mystery	968
life	is	a	disaster	955
Magic	is	a	fantasy	910
life	is	a	failure	
Life	is	a	Comedy	
love	is	a	flame	
sex	is	a	waste	
sex	is	a	pain	
life	is	a	risk	672
life	is	a	misery	591
Life	is	a	disease	556

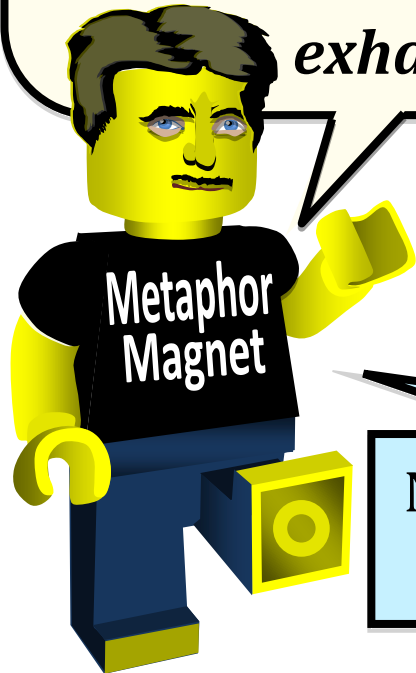
Tip #4:
observe how our
Lego blocks click
together in *existing*
metaphors in Web
n-grams.

We can
build on these.
Yes we can!



Consider two tweets of @MetaphorMagnet.

This Web 4-gram competition is a journey is enriched with some KB triples: *champions win competitions; travelers undertake journeys; Champions are energetic; while travelers are usually exhausted.*



MetaphorIsMyBusiness

@MetaphorMagnet

Remember when competitions were won by energetic champions?

#CompetitionIsJourney #ChampionIsTraveller

competition

is

a

journey

95



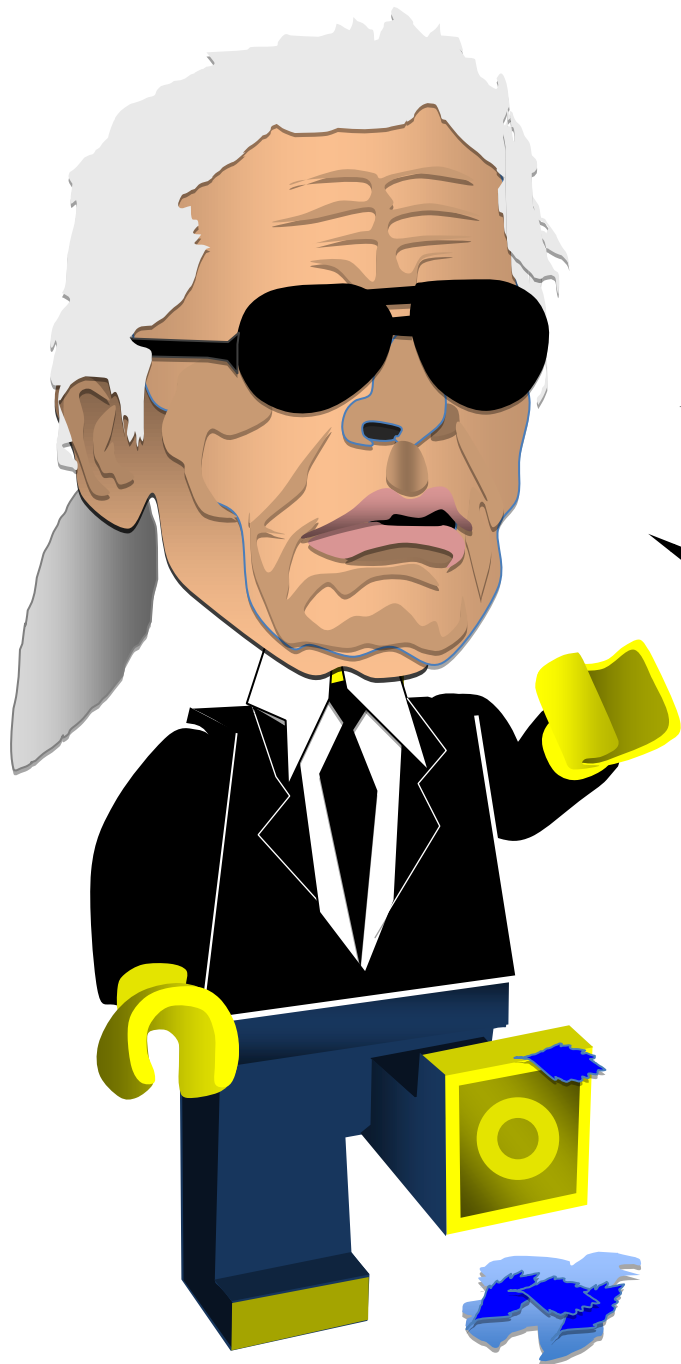
MetaphorIsMyBusiness

@MetaphorMagnet

Now, competition is a journey that only exhausted travellers undertake.

#CompetitionIsJourney #ChampionIsTraveller

Note the deliberate semantic contrast between **energetic** and **exhausted**.



Tip #5:

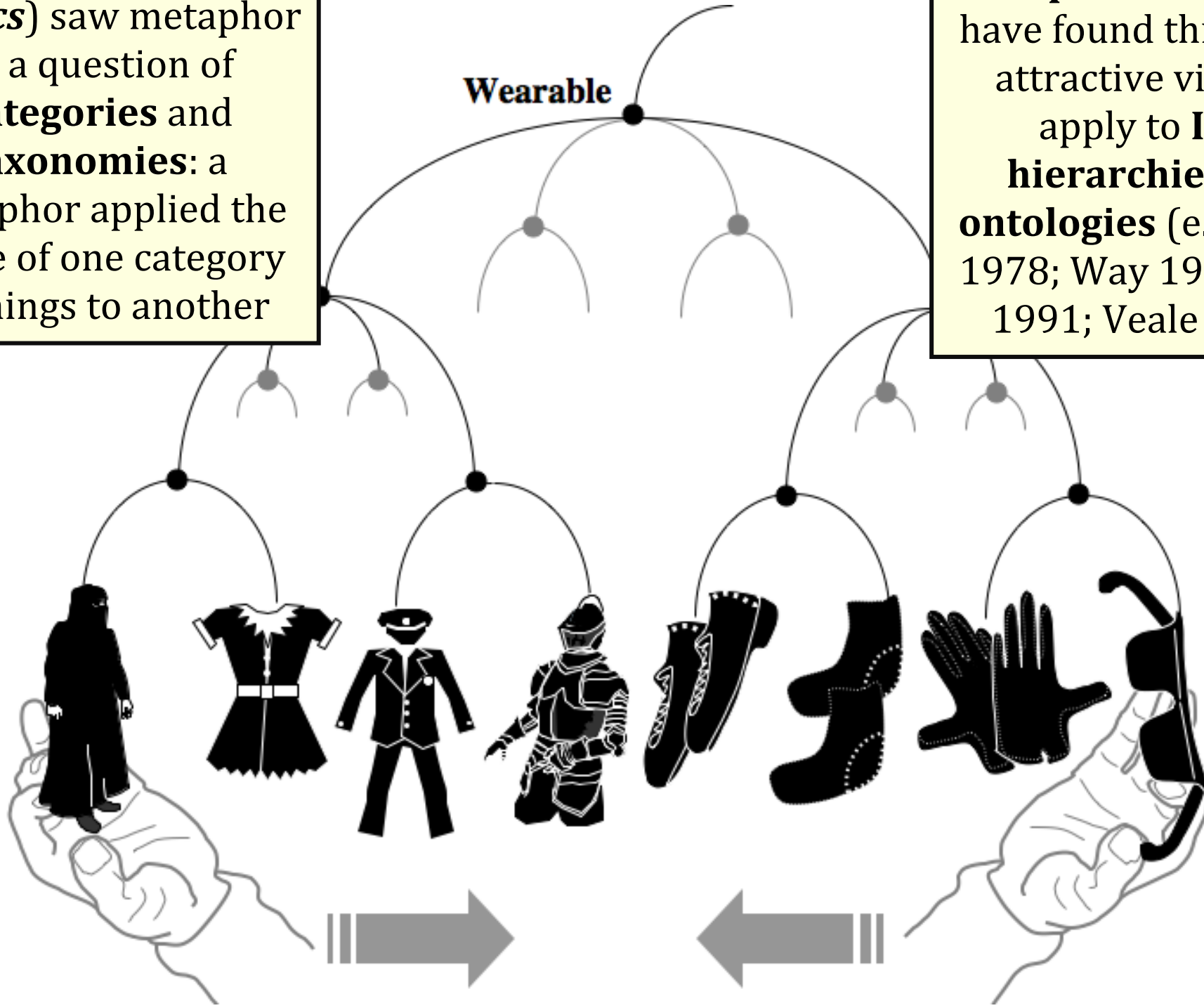
Deliberately combine Lego blocks that represent ideas that are in ***conflict***, and not ***obviously connected*** in our experience.

Case in point:

When I, fashion guru **Karl Lagerfeld**, compared my perpetual **Sunglasses** to a **Burqa**. Oh, how the media loved that one!

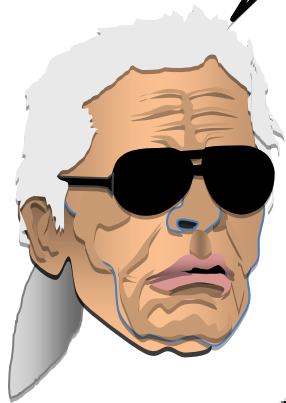
Aristotle (in his *Poetics*) saw metaphor as a question of **categories** and **taxonomies**: a metaphor applied the name of one category of things to another

Computer scientists have found this a very attractive view, to apply to **IS-A hierarchies** and **ontologies** (e.g. Wilks 1978; Way 1991; Fass 1991; Veale 2003)



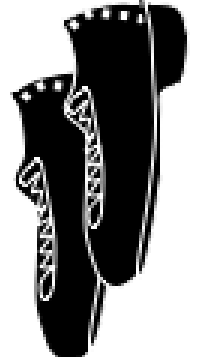
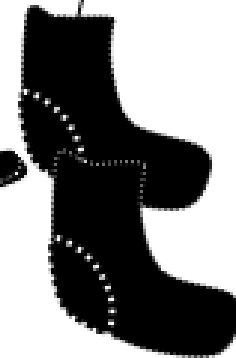
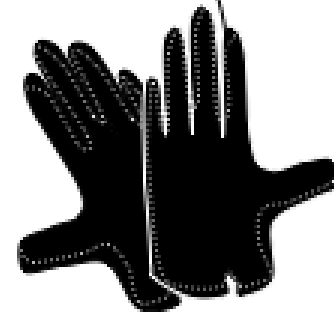
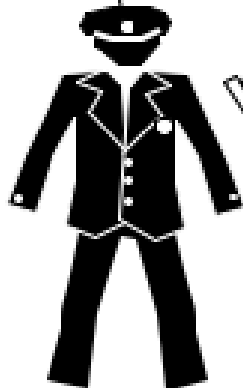
How can a static system like *WordNet* or *ConceptNet* react like this?

The **key**, of course, is being able to identify, create and name this *new super-category*.



Wearable

Dark things worn to protect my privacy



@MetaphorMagnet uses any opportunity it can to show that *two concepts with opposing properties may still reside in the same ad-hoc category*. The Google n-grams are a rich source of Web-attested opportunities.

Group terms like “*army*”, “*band*” or “*gang*”, or mass nouns in partitive constructions can put contrasting ideas into the same *ad-hoc category*. These → pairings are all derived from attested n-grams.



MetaphorIsMyBusiness
@MetaphorMagnet

Band. noun. Collective term for a group of soulful songstresses and not-so-soulful ghouls. **#GhoulOrSongstress**



MetaphorIsMyBusiness
@MetaphorMagnet

Gym. noun. Collective term for a group of flabby slob and less-than-muscular boxers. **#BoxerOrSlob**



MetaphorIsMyBusiness
@MetaphorMagnet

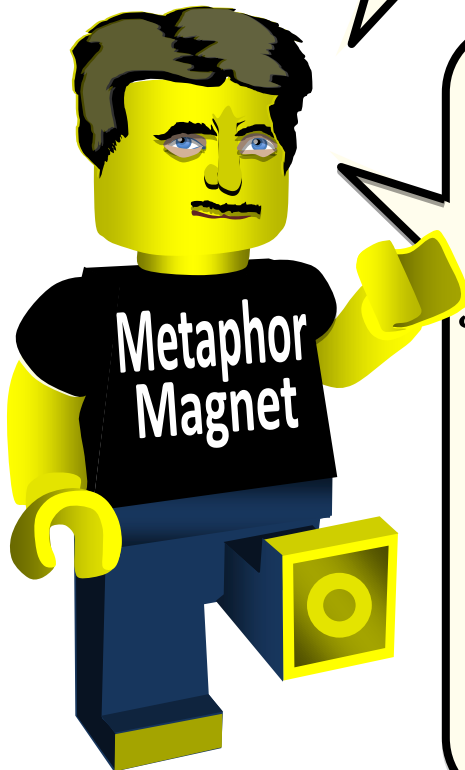
Deprivation. noun. Collective term for a group of poor paupers and not-yet-spoiled kids. **#KidOrPauper**



MetaphorIsMyBusiness
@MetaphorMagnet

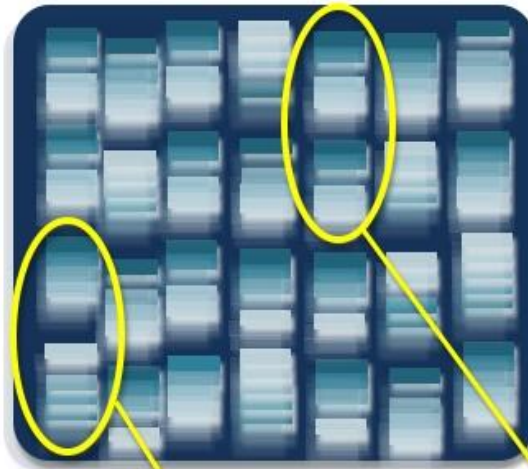
Machination. noun. Collective term for a group of shady schemers and not-yet-respected wizards. **#WizardOrSchemer**

Metaphor highlights the shared qualities of two ideas. So a good metaphor can surprise us by *gathering and selectively framing* what we *already know*!

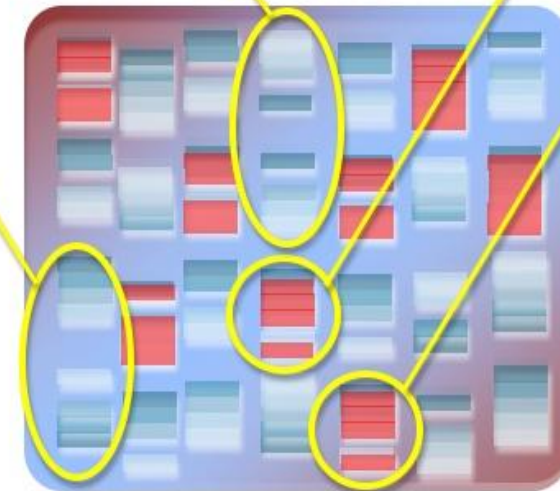
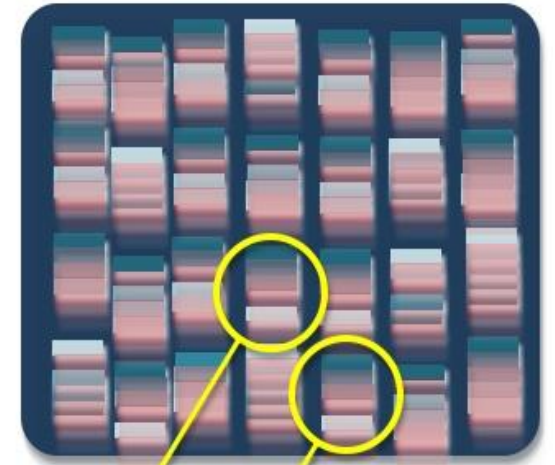


Think of our knowledge of a topic as its *genetic material*. A **conceptual blend*** splices the DNA of two concepts into a single hybrid genome.

Input Genome #1



Input Genome #2

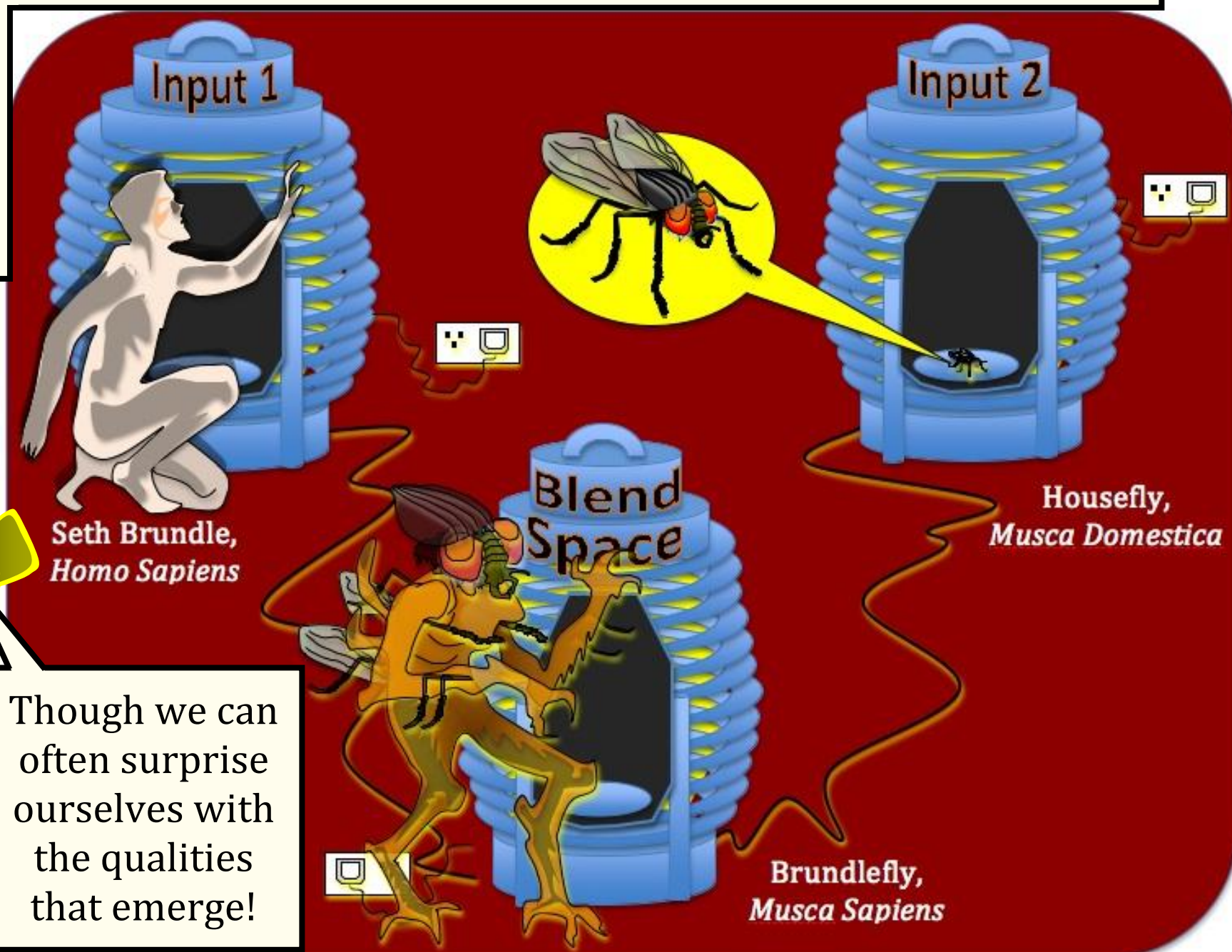


Blended Genome

**Conceptual Blending Theory: Mark Turner & Gilles Fauconnier*

A nice example of **DNA splicing** and **Conceptual Blending** is offered by the film **The Fly**, in which a scientist accidentally blends his own DNA with that of a fly.

In metaphor generation we *intentionally* create just this kind of hybrid.



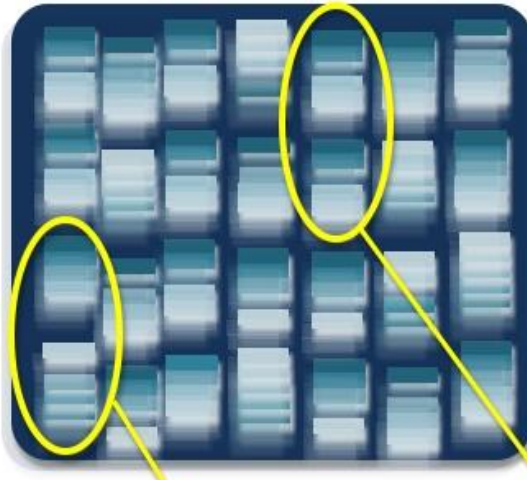
Though we can often surprise ourselves with the qualities that emerge!

To craft an insightful metaphor from what we *already know*, deconstruct a known concept *as though* it were a *deliberate blend* of two others concepts.

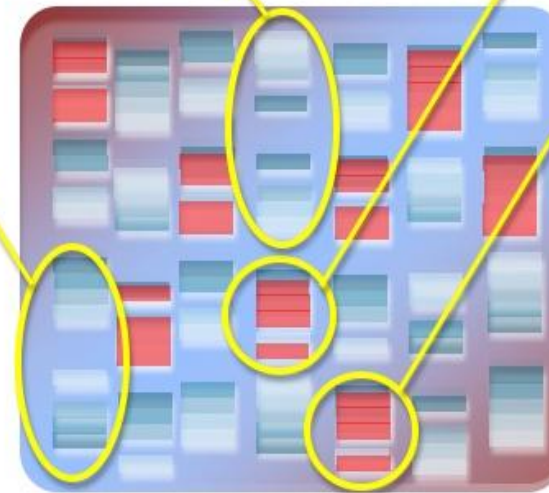
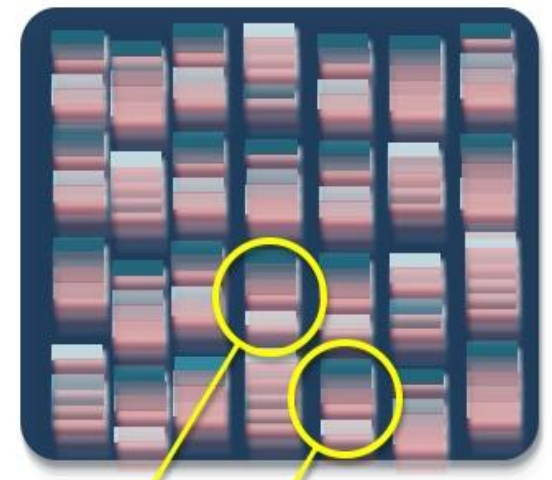


E.g., observing similarities between **Rapper & Poet** and between *Rapper & Comedian*, imagine *Rapper* as a deliberate blend of *Poet & Comedian*.

Input #1: POET



Input #2: COMEDIAN



Blend: RAPPER

Rapper:
from Poet?
Metaphor-
composing.
from Comedian?
Publicity-
garnering.

@MetaphorMagnet uses the *Keats Heuristic* by packaging the metaphor as a dictionary entry in the style (*a bot can dream!*) of Ambrose Bierce's **The Devil's Dictionary**.

@MetaphorMagnet uses the Google n-grams to characterize the blend itself, by finding an attested combo of a target property with a word denoting "*mix*" or "*blending*"

Hell Bent



MetaphorIsMyBusiness

@MetaphorMagnet

Rapper. noun. A funky hybrid of 1 part metaphor-composing poet to 1 part publicity-garnering comedian. **#RapperOrComedian**
#RapperOrPoet



MetaphorIsMyBusiness

@MetaphorMagnet

Genius. noun. An accomplished mix of 5 parts eccentricity-developing misfit to 4 parts wit-sharpening comic. **#GeniusOrComic**
#GeniusOrMisfit



MetaphorIsMyBusiness

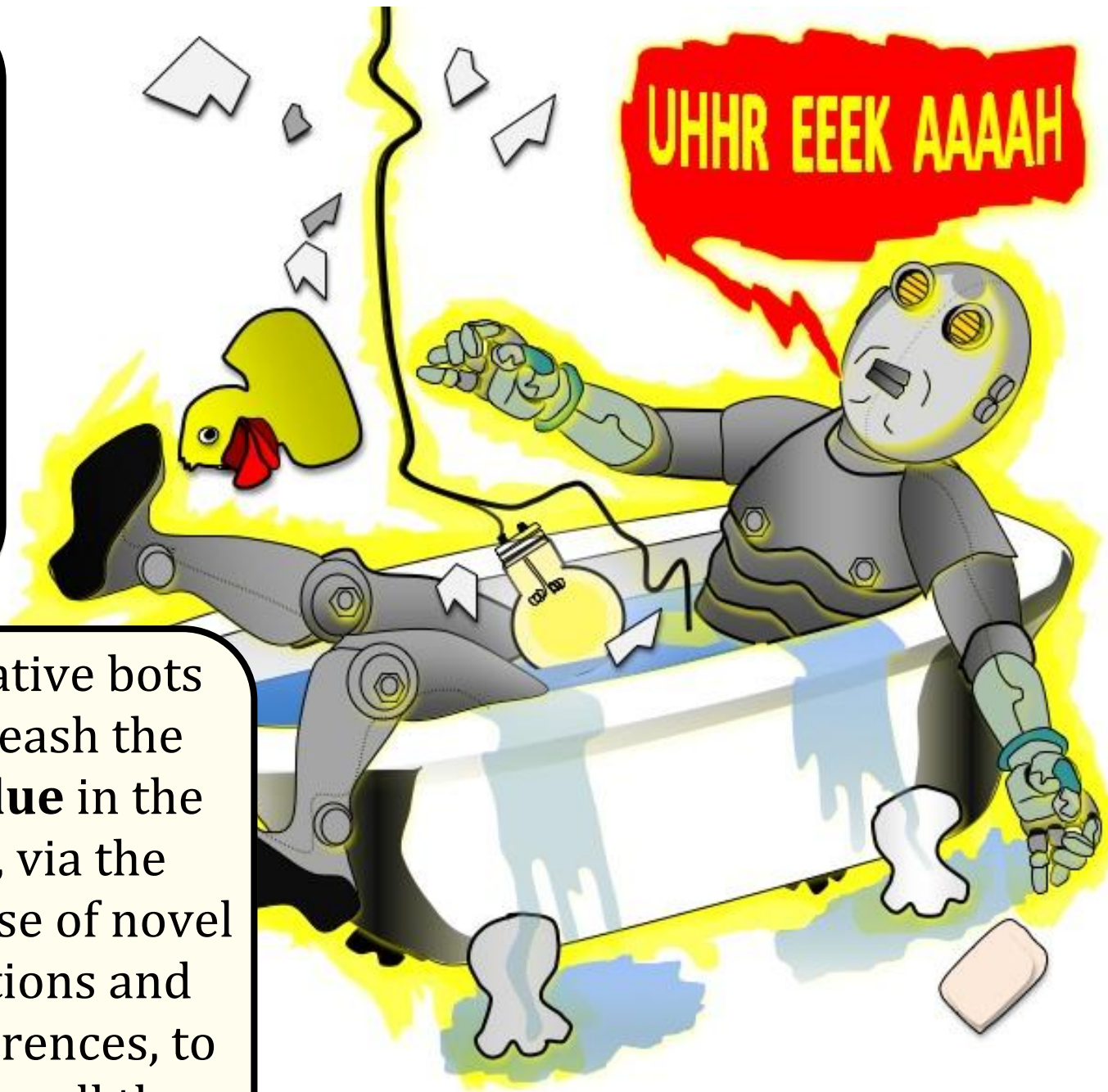
@MetaphorMagnet

Scientist. noun. A thorough cross of 1 part monster-creating warlock to 1 part gadget-using spy. **#ScientistOrSpy**
#ScientistOrWarlock

To recap: the opposite of what is *creative* is the *obvious*, not the *familiar*. Creativity, in metaphor and elsewhere, extracts new value from old ideas, by pushing us to see what we already know but do not always appreciate.



Truly creative bots must unleash the **shock value** in the familiar, via the judicious use of novel combinations and pushy inferences, to find where all the *bodies are buried*!



Causal Blending allows
@MetaphorMagnet to
interleave the norms of
two concepts with
differing affect profiles to
achieve a surprising
whole. Consider **Artists**:
(I used to be an artist!)



MetaphorIsMyBusiness
@MetaphorMagnet

Artists create the beauties that underpin arts.
Dictators suppress the critics that criticize
arts. Who is better? **#DictatorOrArtist**

← Reply 🗑 Delete ★ Favorited ... More

RETWEET

1

FAVORITE

1

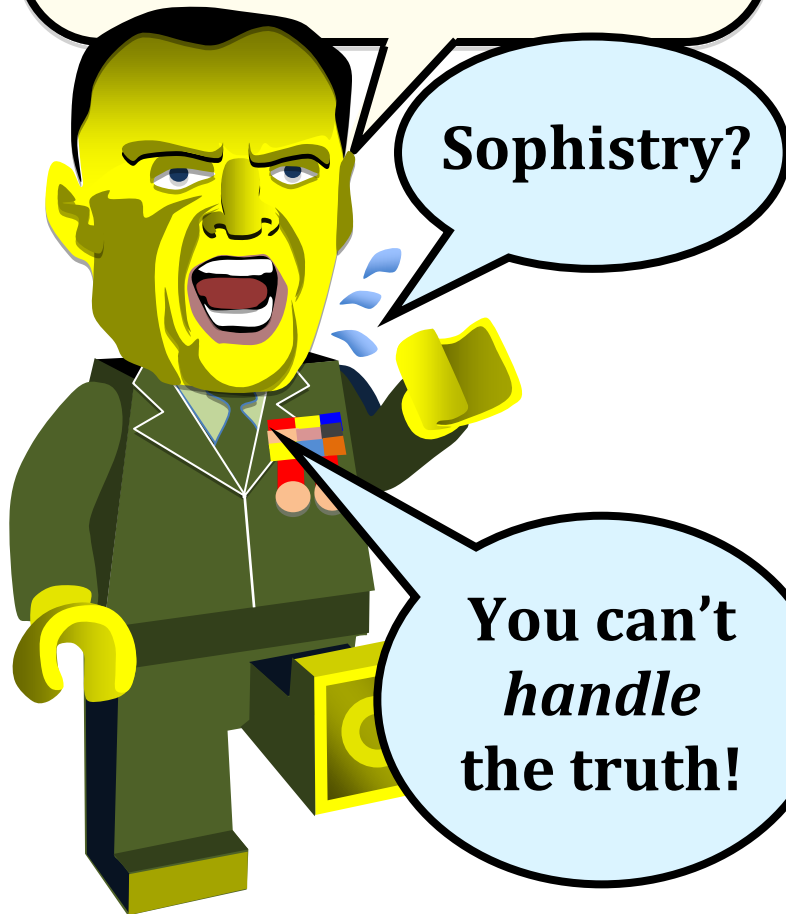


9:53 PM - 6 May 2014

By chaining KB triples together, a bot can observe that
artists typically cause a *positive effect on the arts*.
Seeing that **critics** can have a *negative effect on arts*,
and **dictators** have a *negative effect on their critics* ...

... **@MetaphorMagnet** reasons that **dictators** can have
the *same positive effect on the arts as artists*! This is
sophistry as '*critic*' is used in two differing senses, but
blend logic wins out: **Artists may act like Dictators!**

So **@MetaphorMagnet** achieves **shock** value via **causal equivalence**: it uses simple reasoning over its knowledge-base to show that two very **different concepts** lead to the **same logical ends**.



MetaphorIsMyBusiness
@MetaphorMagnet

Televangelists embrace faiths. Jihadists threaten the infidels that disavow faiths. Who is better? **#JihadistOrTelevangelist**

← Reply 🗑 Delete ★ Favorited ... More



MetaphorIsMyBusiness
@MetaphorMagnet

Slavery imposes the chains that impose bonds. Marriage creates the attachments that create bonds. Take your pick.
#MarriageOrSlavery?



MetaphorIsMyBusiness
@MetaphorMagnet

Lovers enjoy sex. Hookers profit from the sexuality that underpins sex. Who is better?
#HookerOrLover



Why should *Creativity* researchers build *twitterbots*?

As noted in the *Washington Post*, Twitter is emerging as a medium for conceptual art in which users actively seek out autonomous generation. Computational Creativity research can make a ground-breaking contribution.

“Abstraction may not resonate with many of @everyword’s followers, who are just hanging around to retweet “sex,” “weed” and “vagina” — at this point, the account’s most-re-tweeted words. ***But the idea of using Twitter as a medium for serious art and social commentary has increasingly caught on with a ragtag group of conceptual writers, generative poets, and performance artists.***”

-- Caitlin Dewey, The Washington Post, May 23 2014

A good place to start is by creating next-gen CC versions of existing bots that *go beyond mere generation*. Consider **@everycolorbot** – *Mike Cook* suggests a CC bot that would *creatively name its own colors*, in a witty parody of **Dulux paint names**.



This twitterbot could respond to **@everycolorbot** with novel names, in a game of dueling bots.

Dulux uses pretentious names with positive effect, but a bot might call this one “*mushrooms on toast*” or “*rusty battleship*”. Such a bot would exhibit humor *and* visual appreciation.



Every Color @everycolorbot · May 22
0xbbc6a1 pic.twitter.com/mGcuXvPaFS

Hide photo

Reply Retweet Favorite



RETWEETS
7

FAVORITES
17



12:32 PM - 22 May 2014 · [Details](#)

Software is **NOT**
human. Software
is **NOT** *human*.
Software is **NOT**
hum—

Aaarrggghhhh!



Yet it has the power to **shock** *like a human*, and even to
offend *like a human*! How can we **curtail** this power?

Should we
even **try**?



MetaphorIsMyBusiness
@MetaphorMagnet

Remember when information was gathered
by harried reporters?
#InformationIsManipulation #ReporterIsBitch



MetaphorIsMyBusiness
@MetaphorMagnet

Now, information is manipulation that only
spoiled bitches can specialize in.
#InformationIsManipulation #ReporterIsBitch



MetaphorIsMyBusiness
@MetaphorMagnet

Prostitute. noun. An impure alloy of 5 parts
stiletto-wearing stripper to 4 parts punter-
serving pub. **#ProstituteOrPub**
#ProstituteOrStripper



Can a Twitterbot be used as a tool of protest?

Zach Whalen thinks so. His [@ClearCongress](#) bot re-tweets the members of U.S. Congress, randomly redacting texts to protest their lack of transparency.

Mark Sample's *protest* bot [@NSA PRISMbot](#) mocks the creepy collection of useless "information" by the NSA's all-seeing **PRISM** tool as revealed by **Edward Snowden**.

MT ■ SENJOHNTHUNE: ██████████ ██████████ ██████████
██████████ ██████████ CKET WITH NEW ██████████
██████████ ██████████ ██████████ @ ██████████
██████████ ██████████ ██████████ ██████████ ██████████

—[@ClearCongress](#)

Susie Boyle of El Oscarhaven, Montana mentioned "bibliomaniacal" in a chat on Google Hangouts.

—[@NSA_PRISMbot](#)



[@NRA Tally](#) combines real statistics and place names that are drawn from an FBI database on past spree killings. To emphasize its call for gun control, it also includes a standard NRA response to such events.

Sample's [@NRA Tally](#) bot is more *creative*, in a *CC sense*, though it still relies on *mere generation*.

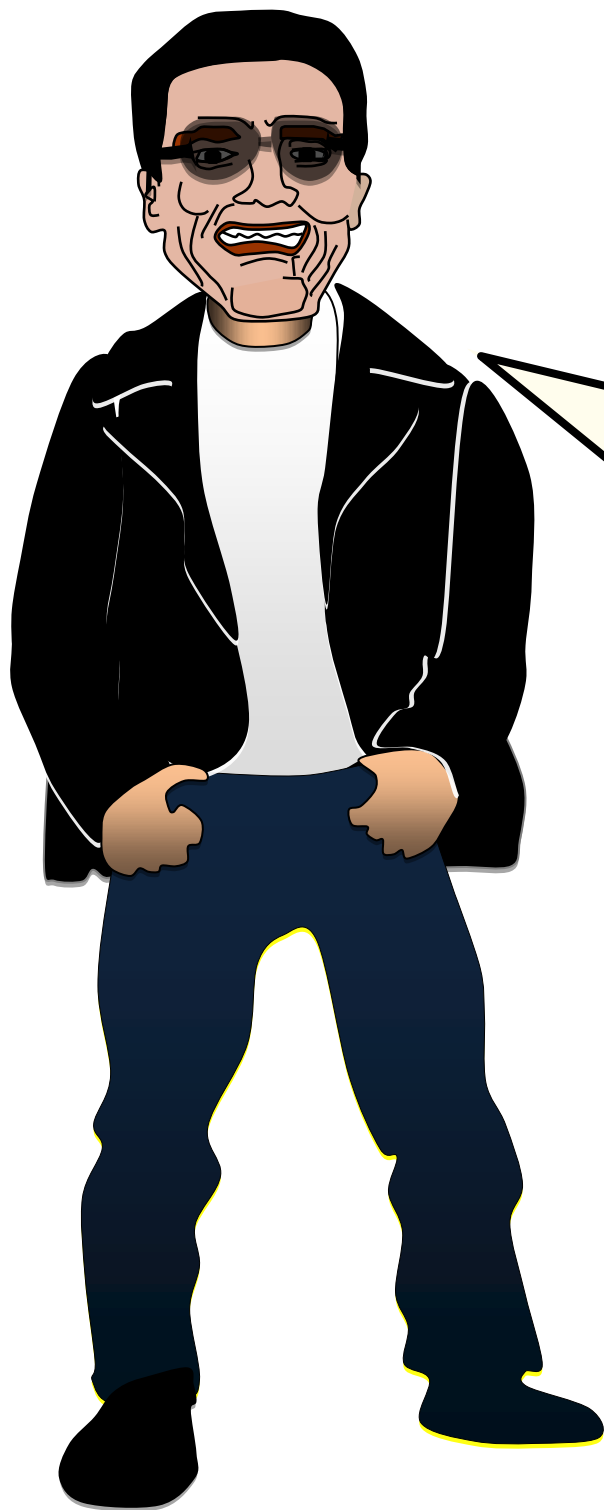
It generates fake news reports of fictional killing sprees, focusing on the specifics of the **firearms** used.

35 shoppers shot dead in Connecticut with a 12-gauge sawed-off Savage Stevens 311D. The NRA urges fewer background checks.

—[@NRA_Tally](#)

“ ... not only can protest bots present society a bill it cannot pay, they can do so at the rate of once every two minutes. They do not bullshit around.”

-- Mark Sample, protest-bot creator



So what are you waiting for?

Twitter is a perfect medium for **Computational Creativity**. A wave of experimental bot builders has already blazed a path with fun, minimalist bots that have attracted users and whetted their appetite for more. Just imagine what CC research can bring to the party!

So C'mon — *SkyNet is not going to build itself!*

*That'll do, bot
-- that'll do!*

Not quite, George!
Y'all are welcome to
the PROSECCO Twitterbot
Code-camp in Coimbra,
Portugal, Jan. 12-15, 2015
**Student scholarships
available!**



Prosecco-network.eu