When Worlds and Scripts Collide

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Abstract. The notion of a frame, script or situation occupies a central position in contemporary theories and computational models of humour. Specifically, humour is hypothesized to arise at the overlapping boundaries of two scripts or frames that antagonistically compete to mentally organize the same situation. At the point of divergence, the cognitive agent finds that the chosen script or frame no longer offers an adequate explanation of the situation, and so must switch between scripts, or shift between frames, to achieve an understanding of why the situation has evolved the way it has. However, even banal situations are often complex enough to require the interaction of multiple scripts, yet most situations are not occasions of humour, so the humorous jolt that one gets from a sudden change of perspective must be the exception rather the norm in the script-based comprehension of a situation. Rather than attempt to model the humorously exceptional cases directly, as though they represented the totality of script-based understanding, we consider here the problem of modeling the blending of scripts more generally, to understand how and why one script can give way to another in the course of story comprehension and generation. With a computational framework in place, we can begin to explore the fundamental differences between, on the one hand, script blends that are relatively seamless, and on the other, those that create sufficient friction to be viewed as humorous. We conduct our exploration in the context of a metaphor-generating Twitterbot, *@Metaphor Magnet*, that is now being turned into a spinner of mini-narratives.

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1 Running with the blend

Whenever we aim to capture the drama and the comedy of the human condition on the stage or on the screen, we first set out to find the right script. It is not surprising then that when scholars set out to model our cognitive faculties for understanding all this comedy and drama, they also look to the notion of a script, not as it is written on the page but as it is abstracted in the mind. Because these mental scripts (in the sense of Raskin 1985) capture the regularities of life and our experiences of the world, they allow us to explain our past and to predict our future. We thus call upon scripts to guide our behaviour whenever we order coffee, make dinner, catch a train or go on a date. Unsurprisingly, though, the best examples of scripts still come from the movies. Consider this short extract from the movie Jurassic Park, which captures an exchange

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between the park's creator, John Hammond, and a wry mathematician, Ian Malcolm, who has been asked to evaluate the park's viability before it is opened to the public. The park of the title is populated with genetically-engineered dinosaurs, and so the dialogue takes place against a backdrop of carnivorous mayhem and destruction:

John Hammond: All major theme parks have delays. When they opened Disneyland in 1956, nothing worked!

Dr. Ian Malcolm: Yeah, but, John, if The Pirates of the Caribbean breaks down, the pirates don't eat the tourists

At this point in the movie, nothing is working in Jurassic Park, but nothing worked in 1956 at Disneyland either, and the latter turned out to be a huge financial and cultural success. Hammond thus frames *Disneyland* as a script by focusing on the temporal sequence of events associated with its launch, its initial problems, and its eventual success. With this implicit analogy to Jurassic Park, whose launch has been plagued by unique problems of its own, Hammond predicts that his own troubled venture will follow the same script and achieve the same success. In effect, he sees *Disneyland* and *Jurassic Park* as two overlapping frames or scripts, and wants others to see the overlap too, so they might come to the same conclusions. Malcolm's rejoinder is also intended to be understood in the context of this analogy, but it is much more than an analogy. It involves mapping, yes, so that The Pirates of the Caribbean is aligned with the attractions of Jurassic Park and the pirates of the former are mapped to the dinosaurs of the latter. But the salient behaviors of the latter – such as eating people willy-nilly – are also integrated with the protagonists of the former, to generate a counterfactual image of animatronic pirates eating tourists in mouse-earred caps. In the words of Fauconnier and Turner (2002), Malcolm has created a *blend* and is now *running* it: that is, he is conducting a mental simulation to explore the emergent possibilities that were hitherto just latent in the juxtaposition of both frames or scripts.

Disneyland and Jurassic Park are very different in so many ways, but one gets no sense of these differences from Hammond's analogy, which is designed to emphasize the convergence of scripts and to downplay their divergence. Malcolm's rejoinder, in contrast, takes this convergence as given (hence his "Yeah") but gives most emphasis to the divergence (hence his "but"). Malcolm's remarks make sport of what Raskin (1985), and Attardo and Raskin (1991) call the underlying *script opposition* (SO), yet he goes further than simply pointing out the SO: he blends both scripts into a ridiculous mélange that forces Hammond (and us) to see the dramatic consequences of the SO. That Malcolm's remark is funnier than Hammond's can be attributed to this use of script overlap *and* opposition (where Hammond's has just the former), but it is his use of blending that transforms the SO into a ridiculous situation worth laughing at. This transformational effect suggests that blending accounts of frame-shifting – e.g. by Coulson (2001) – offer more than merely notational variants of the script switching accounts of Raskin (1985) and Attardo *et al*. (2002). Rather, script blending concretizes the SO at the heart of a joke in a way that a simple switch from one script to another cannot. So in this paper we present a computational account of script blending more generally, to cover blends that are seamlessly banal as well as those with enough

creative friction to be seen as humorous. In the process we hope to build a solid platform to support the computational generation of the latter.

2 Related Work and Ideas

Scripts assume a protean form in modern approaches to humor. From Raskin's (1985) use of classical AI scripts – in essence, temporally-ordered narrative skeletons with roles and variables – scripts have, since Attardo *et al*. (2002), evolved into generic graph structures. This generalization turns scripts into structures not unlike the *mental spaces* of blending theory used by Coulson (2001) and Fauconnier and Turner (2002). So metaphors, which involve a juxtaposition of the schematic representations of two domains, a source and a target, can be viewed as a case of script overlap between two conflicting scripts whose SO gives us the metaphor's characteristic semantic tension. Veale (2014a) uses the *cut-up technique* to generate novel metaphors via a splicing of propositions from very different domains, propositions that are chosen to maximize rather than to minimize the boundary friction between each domain. Such metaphors can themselves be viewed as scripts, allowing a computational system to generate high-friction juxtapositions of conflicting metaphors for the very same topic. Veale *et al.* (2015) demonstrate how the *@MetaphorMagnet* Twitterbot of Veale (2014a) harvests metaphorical schemas – such as *history is a line* and *history is a chain* – from Web corpora, and treats them as conflicting scripts to generate provocative tweets like "@war_poet *says history is a straight line*; @war_prisoner *says it is a coiled chain*". As described in Veale (2015a), the bot also invents its own aptly-named interlocutors (such as @war_poet and @war_prisoner) to espouse the conflicting positions and thus wrap an additional layer of social conflict around the underlying SO. But linguistic and rhetorical style can also be viewed as a script, inasmuch as it brings with it a rich set of norms and expectations. Veale (2015b) takes its cue from Raymond Queneau's famous *Exercises in Style*, an Oulipo-inspired exploration of the role of textual style in shaping meaning in varied ways to evoke alternating responses in the reader, from pathos to detachment to laughter. By giving *@MetaphorMagnet* a diversity of voices with which to frame its metaphorical outputs – ranging from the philosophical to the religious to the cynical to the childish – Veale (2015b) shows how humorous conflict can often be created between the concept level of a tweet and its linguistic rendering.

Twitter offers fertile ground to humans and machines alike for this kind of stylistic blend, while the concision required of tweets ensures that such blends are often short, concentrated doses of verbal ingenuity. The comedian Patton Oswalt has initiated a sequence of tweets with the tag **#JamesEllroyStarWars** that elicits the best examples of this kind of blend, by encouraging followers to blend plot points from the film *Star Wars* with the distinctive, argot-laden and free-flowing style of Amerian crime writer James Ellroy (noted for *L.A. Confidential*). Some typical tweets include "*Obi-Wan was preaching that Jedi beatnik bebop while an imperial cruiser counted the hairs on our backsides*" and "*Leia kissed Luke on the mouth. Deep down she knew he was her brother, but she grooved on it*." Another trending tag that encourages stylistic blends is **#ThingsJesusNeverSaid**. This tag elicits pseudo-religious aphorisms with a big dollop of irony, such as "*Love your enemy unless it makes you uncomfortable*" and "*Blessed*

are the corporations, for they shall be called my constituents." So stylistic blends must have something interesting to say, while parodying the most identifiable verbal mannerisms of a well-known communicator. In this vein, @*MetaphorMagnet* puts the essence of authorial voices such as *Yoda*, the *Hulk*, *Donald Trump* and *Jesus Christ* into script form, and for the content of its tweets – the second script in its blend – it uses the outputs of Veale (2014b)'s *Flux Capacitor*, to which we turn next. As a taster, this tweet from @*MetaphorMagnet* aims to capture the essence of *Mr. Trump*:

Tweet 1:	Blessed are the broke tramps that get jobs, for they shall inherit empires and become wealthy kings.
	#ThingsTrumpNeverSaid#Tramp=#King

3 Scripts We Live By

Scripts can vary widely in their temporal scale and event resolution. We can thus use scripts to model almost anything, from the actions of sub-atomic particles to the growth of the universe and most everything in between. We often conceive of scripts as bundles of linked actions for everyday events such as using an ATM or ordering lunch, but scripts can be just as useful in organizing our understanding of events that can last a lifetime. A glance at the obituaries page in any newspaper reveals our desire to impose a linear narrative on a person's life, allowing us to appreciate the life less ordinary as a departure from the scripted norm. From an AI perspective, it thus makes sense to model people – or rather, *types* of people – as scripts, so as to understand their actions as either normative (script adherence) or transgressive (script violation).

To generate its condensed stories of change, Veale (2014b)'s *Flux Capacitor* system explicitly models diverse person types, or what Veale calls stereotypes, as scripts. At its core, the system rests on a large set of knowledge triples that characterize diverse kinds of person, such as *criminal*, *surgeon*, or *clown*, via their various actions, settings and goals. The *Flux Capacitor* tags these triples with integers to impose upon them a partial ordering, to indicate, for instance, that surgeons must enroll in medical school (step 0) before they can study medicine (step 1) and graduate with a medical degree (step 2). Any triple may be tagged in this way with an integer from 0 to 9, where: 0 indicates a category-entry action (e.g. enrolling in medical school, joining the circus); 9 indicates a category-departure action (e.g. losing one's medical license, getting fired from the circus); 5 indicates steps that one associates with a category instance in full flight (operating on patients as a qualified surgeon or performing pratfalls as a circus clown); 1…4 indicates an action leading up to this mid-life high; and 6…8 marks those actions that take one a step closer to a final category exit (such as losing one's sense of humour or being sued for malpractice). In the course of one's scripted life, a person is expected to progress from 0 to 9, passing through a series of intermediate steps that draw one fully into a category before inexorably pushing one out again. To generate a normative plot, the *Flux Capacitor* need only sample its set of triples for a given stereotype to a form a chain of successive actions linking any step 0 to a step 9.

But the life less ordinary does not progress from 0 to 9 within the same category. Rather, just as interesting people deviate from the norm, interesting characters deviate from the script by jumping the rails from one category into another. Ebenezer Scrooge goes from a "grasping, scraping, clutching, covetous old sinner" to secret Santa in the space of *A Christmas Carol*, jumping categories from misanthropist to philanthropist to find himself following a very different script. Ben Hur goes from Jewish prince to Roman slave to Arab horseman to ace charioteer in the space of his eponymous epic, while Maximus Decimus Meridius follows a similar, script-hopping trajectory from Roman general to Spanish slave to Roman hero in the film *Gladiator*. (Gregor Samsa starts Kafka's *Metamorphosis* as a "giant vermin," but things go downhill from there.) Entertaining plot twists turn hunters into prey, underdogs into champions, friends into enemies, sinners into saints, or members of one category into something else entirely. To maximize incongruity, the *Flux Capacitor* shunts a character into categories and scripts that dramatically flip at least one of its key qualities, such as *strong→weak* or *rich→poor*, as in *Tramp* to *King* above, or in this example from @*MetaphorMagnet*:

Tweet 2a:	How might an unpopular geek become a venerated founder?
Tweet 2b:	What if unpopular geeks were to acquire social graces, start businesses and become venerated founders? #Geek=#Founder

@*MetaphorMagnet*, as a user of the *Flux Capacitor*, here chooses *geek* and *founder* to serve as the start and end categories of its unnamed character: geeks are typically *unpopular* and lacking in social graces, while founders are very often *venerated*. The scripts for both are stitched together by linking an exit event for *geek* (acquiring social graces, a step 9 action) to an entry event for *founder* (*starting a business*, at step 0). In the next section we set about motivating this change of script with an inciting event.

4 Slow-Burn Transformations

Kafka's *Metamorphosis* is an exception rather than the norm when it comes to literary transformations. *Gregor Samsa*, his unfortunate protagonist, goes from beloved son to hated vermin in an off-stage transformation before the story even begins. This radical change remains unexplained to the bitter end, in what is itself a *meta*-plot point. But most dramatic changes in characterization are motivated by observable plot actions, whether in the actions of others (a mentor, a lover, an enemy) or in the actions of the unstable protagonist himself. So *Walter White*, the meth-cooking anti-hero at the heart of *Breaking Bad*, goes from caring chemistry teacher to ruthless drug lord when he learns that he has terminal cancer and no longer has anything to lose. To motivate the movement of a character from one stereotypical category (and script track) to another, our system must introduce an inciting event that spurs the character to switch tracks. This incitement may come from another character that exercises a strong influence on our protagonist, or it may arise gradually, in the manner of a character's core actions. Let's look at the latter case first, using these @*MetaphorMagnet* tweets as examples:

Tweet 3a	Tweet 3b	Tweet 3c
#Monotony is when you:	#Gore is when you:	#Cruelty is when you:
1. Invent a fiction	1. Go on a trip	1. Go on an exploration
2. Become a storyteller	2. Become a holiday maker	2. Become a searcher
3. Tell monotonous stories	3. Enjoy bloody trips	3. Conduct cruel searches
4. Turn into a drudge	4. Turn into a killer	4. Turn into a sadist
#Storyteller=#Drudge	#Holiday_maker=#Killer	#Searcher=#Sadist

The skeletal structure of these stories is necessitated by Twitter's 140-character limit, yet a *bare bones* rendering is sufficient for each to unfussily tell its tale. In each story, our unnamed protagonist hops from category to category and script to script, opening with a *step 0* action from a source script ***A*** that permits entry into the category of ***A***. The next stage in each plot is now a blended action that moves the actions of the source category into a target domain ***B***. Thus, though it is in the nature of story-tellers to tell stories and it falls on drudges to perform monotonous tasks, a blend of both of these behaviors can be observed in the action *tell monotonous stories*. For if one tells enough stories monotonously, the act of story-telling becomes a chore for speaker and listener alike, causing our hero to slowly become a drudge. Two pieces of information are key to arriving at this insight: The first, that drudges typically do monotonous things, is to be found in the system's script for *drudge*. The second, that stories can themselves be monotonous to tell, is a domain-bridging possibility that is found in neither script but only acquired via experience of the world. In *@MetaphorMagnet*'s case, the outside world is experienced vicariously through the Google Web n-grams (Brants and Franz 2006), which suggest to the system, via the bigram "monotonous stories" (*frequency = 41*), that telling stories can sometimes be like performing chores. In the words of Fauconnier and Turner (2002), *@MetaphorMagnet* recruits the idea that stories may be monotonous as a means of blending together two competing frames.

The stories above squeeze as much as they can into Twitter's minimal containers, framing their 4-act plots with a moralizing label such as "#Cruelty is when you ___". But this additional real-estate can also be used to add an additional 5th act to our plots:

Tweet 4a	Tweet 4b
1. Apply for a scholarship	1. Enroll in a university
2. Become a student	2. Become a student
3. Undergo bizarre educations	3. Undergo brutal exams
4. Turn into a freak	4. Turn into a beast
5. Lose your scholarship	5. Flunk out of university

These 5-act tweets leave no room for adornment with hashtags of the form **#A=#B**, though the meanings remain clear in each case. Each mini-narrative shares the same skeletal structure: 1. an entry action for category ***A***; 2. a statement announcing the protagonist's arrival in category ***A***; 3. a blended action transposing a central event in category/script ***A*** into the domain of category/script ***B***; 4. a statement announcing the protagonist's arrival in category ***B***; 5. a subsequent departure from category ***A***. Note how each tweet pairs a category-entry action with a category-exit action that governs

the same very object (i.e., *scholarship* in tweet 4a and *university* in tweet 4b). This minimizes the complexity of each narrative and also yields a satisfying symmetry, yet this symmetry can itself be subverted to introduce more ambiguity and nuance. If we switch the fifth act in these tweets, ending tweet 4a with *Flunk out of university* and ending tweet 4b with *Lose your scholarship*, the reader would still infer when reading tweet 4a that the protagonist's grant application was successful, though ultimately for naught, and would just as likely infer in tweet 4b that the protagonist had earned a scholarship that was later squandered through freakish abandon. Nor is the system forced to conclude either tweet negatively, for it might just as easily have chosen the exit action *Graduate from university* for the fifth act of each. Though this would seem to yield an incongruous ending, it is an incongruity that readers can easily resolve by inferring that brutish abnormalities are no barrier to academic success; indeed, as our protagonist *undergoes bizarre educations*, it may instead prove to be an advantage. In short, the system has a wealth of combinations to explore, even for a short tweet.

Though Twitter gives *@MetaphorMagnet* very little room to maneouvre, it *is* possible to slow the transformation of a protagonist from an instance of ***A*** to an instance of ***B***. The following tweets do not assume an exit from category ***A***, but a blend of ***A*** and ***B:***

Tweet 5a	**Tweet 5b**	**Tweet 5c**
#Reformer=#Loser	#Mother=#Cynic	#Artist=#Sinner
1. Fight for reform	1. Give birth to a daughter	1. Develop an aesthetic
2. Become a reformer	2. Become a mother	2. Become an artist
3. Launch failed crusades	3. Nurture bitter sons	3. Create illicit pictures
4. Become a failed reformer	4. Become a bitter mother	4. Become an illicit artist
5. Get called a "loser"	5. Get called a "criminal"	5. Get called a "sinner"

So our protagonist remains in category ***A*** throughout, yet executes the actions of a member of this category in the manner of someone from category ***B***. The transition between acts 3 and 4 is left deliberately vague in each mini-narrative, to hint at further off-stage actions that eventually lead others to brand the protagonist a member of "***B***." *@MetaphorMagnet* adds the scare quotes to instill doubt and create ironic distance.

5 Ill-met by Moonlight, Ill-treated by Fate

If there is a moral to these mini-narratives, it is that one can unwittingly wander from one domain into another, and jump from one script track onto another, without ever even trying: simply carrying out the prescribed actions of the script for one category of person can lead one to eventually see a very different person in the mirror. This is possible because our categories overlap (yes, some academics *are* also freaks) and our scripts, like railway lines, often cross over at regular junctions. We might go so far as to argue that this is one of the functions of jokes more generally: jokes reveal to us the fragility of our category systems and show us how easily we can come unstuck when adhering to the received – and seemingly sound, albeit rigid – wisdom of others. If the

mini-narratives of the previous section illustrate how easy it is for us to stray across category boundaries, the following show that we are just as often led by the nose:

Tweet 6a	**Tweet 6b**	**Tweet 6c**
1. Record a song	1. Be shunned by society	1. Learn a language
2. Become an artiste	2. Become an ogre	2. Become a linguist
3. Marry a leader	3. Marry a nobleman	3. Marry a hardliner
4. Found an organization and become a leader too	4. Inherit an entitlement	4. Embrace extremism
5. Record the *song of power*	5. Be shunned by the *society of entitlement*	5. Learn the *language of extremism*

In the three tweets above, the inciting incident that leads our protagonist to stray from category ***A*** into category ***B*** is marriage to a persuasive member of category ***B***. In principle, a member of any category of person can marry a member of any other, but the narratives here choose a pair of categories that are already yoked by a metaphor. The result is a script-switching narrative that is intuitively sensible yet which retains the semantic tension of the unifying metaphor. Like the blended action of previous tweets, this metaphor is itself suggestive of a blend of both categories. So, in tweet 6a we see singers and leaders united by the notion of a *song of power*, a 3-gram mined from the Google n-grams; likewise, ogres and noblemen are united by the idea of a *society of entitlement* in tweet 6b, another Web 3-gram, though ogres and noblemen will each experience this society differently (one is shunned, the other welcomed); and in tweet 6c, the Web 3-gram *language of extremism* suggests a blend that allows a linguist to become a hardliner (on linguistic matters, perhaps). In effect, the 3-gram suggests a conceptual marriage that mirrors the narrative marriage of story characters.

But this conceptual marriage can also be realized literally if our protagonists adapt their script ***A*** actions to reflect the influence of a new spouse from category ***B***, as in:

Tweet 7a	**Tweet 7b**
1. Develop an aesthetic	1. Attract a fold
2. Become an artist	2. Become a preacher
3. Marry a lunatic in your milieu	3. Marry a realist in your church
4. Create absurd juxtapositions together	4. Nurture rational flocks together
5. Lose your mind too	5. Succumb to cynicism too

Act 4 in each case is now a blend, of an *action* from ***A*** and a *manner of action* from ***B***. Regardless of how this blended action is constructed, the blend is enough to motivate the switch from script ***A*** to script ***B*** without having to marry off our protagonist. In the terminology of the GTVH (Attardo and Raskin 1991), *marriage* and *blended action* are merely two logical mechanisms among many for achieving a meaningful fusion of scripts. As shown by these @*MetaphorMagnet* tweets, the latter can work on its own:

Tweet 8a	**Tweet 8b**
1. Convert to a religion	1. Lack humility
2. Become a proselyte	2. Become a snob
3. Convert to the *religion of doubt*	3. Lack the *humility of faith*
4. Develop doubts	4. Find faith
5. Renounce God and become an atheist	5. Establish a following and become an apostle

Notice that resolution is only partial in these cases, for what do we mean (and what do Web users mean) whenever we talk of the *religion of doubt* (a Google 3-gram with a frequency of 46) or the *humility of faith* (a 3-gram with a larger frequency of 163)? *@MetaphorMagnet* leaves those questions to readers to answer for themselves. It is sufficient for its purposes that these 3-grams have a foot in two domains at once and thus allow a narrative to segue naturally from script ***A*** to script ***B*** with a single action.

Twitter's 140-character limitation encourages the tweeting of sound-bites, bon mots and other short texts that one hopes will *go viral*, in the fashion of an internet meme. Our generator of blended narratives can also tap into this fondness for *memes* – short textual patterns (typically accompanied by a stock image) that vary from use to use but which retain a recognizable character throughout. One such meme is the rueful expression "Join the army they said. It'll be fun they said" which originated in the world of online gaming (specifically, *Company of Heroes* via *Warcraft 2*) and now adorns a myriad offbeat images on the internet with suitably doleful captions. The following shows *@MetaphorMagnet*'s use of the meme to blend two scripts into one:

Tweet 9:	"Join a delegation," they said.
	"It'll make a skilled diplomat of you," they said.
	Turns out I joined a delegation of clumsy children!

The two scripts are, of course, that for *diplomat* and for *child*, which differ insofar as they suggest the stereotypical properties *skillful* and *clumsy* respectively. Once again, the Google Web n-grams provide the necessary glue to yoke these two ideas, and scripts, together: specifically, it is the 3-gram "delegation of children" (frequency = 164) that allows *@MetaphorMagnet* to equate *diplomat,* the stereotypical member of a *delegation*, to the kinds of member that are explicitly provided in the text, *children*.

The Aesopian fable provides another support structure for forcing two character types together, allowing one to take on salient qualities of the other and thus become a member of a blended category with its own blended script. *@MetaphorMagnet* uses a knowledge-base of animals and their stereotypical qualities and affordances to wrap its mini-narratives in two-tweet mini-fables such as the following:

Tweet 10a:	"I want to be a fantasist," barked a neurotic poodle.
	"I want to escape from reality too," spat a cobra.
	#Fantasist=#Fundamentalist
Tweet 10b:	So the cobra helped the neurotic poodle to nurture a hateful delusion.
	And that is how the neurotic poodle became a fundamentalist.

The logical mechanism at work here might be called *unhelpful helper*. A protagonist with the appropriate qualities to be a representative member of category ***A*** accepts help from another character whose qualities are more suited to category ***B***, and so, in fulfilling the script requirements of ***A*** becomes a representative member of ***B*** instead. The mechanism works best when ***A*** is a desirable category and ***B*** is a negative one:

Tweet 11a:	"I want to be a campaigner," oozed a political worm.
	"I want to be recruited by a campaign too," laughed a hyena.
	#Campaigner=#Hypocrite
Tweet 11b:	So the hyena helped the worm to launch a disreputable campaign.
	And that is how the political worm became a hypocrite.

The Aesopian rendering showcases the system's stereotypical knowledge to maximal effect, lending these mini-narratives a sense of inevitability. One cannot escape one's fate, or deny one's true nature. Yet one can at least *imagine* an exit from ***B*** in a tweet:

Tweet 12a:	"They say I'm acting like a nymphomaniac," shrieked an amorous skunk.
	"I'll show you how", squeeked a sewer rat.
	#Nymphomaniac=#Beggar
Tweet 12b:	The sewer rat coached the amorous skunk to enjoy a filthy lust. But the skunk's friends begged "Please seek treatment for your nymphomania".

6 Conclusions for the Short-Term: Messages in Very Small Bottles

The blending of stereotypical categories and narrative scripts is not so very different from William Burroughs' famed use of the *cut-up method* to generate random texts (see Veale 2014a). Except, of course, that a system such as *@MetaphorMagnet* must serve both as scissors *and* critic, to create cut-ups from its knowledge-base of scripts and their possible renderings in natural language (whether as chunks of dialogue or as declarative sentences), *and* it must also evaluate and filter the outputs, to keep the few that actually work and to reject the multitude that do not. What may seem at first to be the most pressing constraint on *@MetaphorMagnet*'s choices – Twitter's size limit on tweets – turns out to be the least vexing; indeed, it transpires that there are many ways of using this constraint to a system's advantage. For Twitter users expect tweets to suggest much more than could ever be explicitly said in 140 characters, and eagerly bridge the chasm between what is expressly stated and what is presumably intended. Users who must engage their imaginations as a matter of course on Twitter do not feel short-changed by a system that asks them to put flesh on the barest of narrative bones.

The glue that ties these disjoint parts together – whether the bones of our skeleton metaphor or the text fragments of our cut-up metaphor – is the Google Web n-grams, though any large corpus of attested usage data would work just as effectively. These Web n-grams serve as *linguistic readymades*, pre-built and pre-tested ways of linking

two separate domains via a single short phrase. It matters not that a system may not understand the precise meaning of these phrases, as their meaning is intended to be allusive and opaque rather than definitive and transparent. Indeed, it is likely that human consumers of these readymades may themselves be unable to give an exact interpretation to them, but that is the point of language that is allusive, poetic or witty: it often promises more than it delivers, yet rewards any efforts to plumb its depths.

We are currently in the process of evaluating *@MetaphorMagnet*'s approach to script blending, with experiments to elicit human feedback on the composition of the various acts in a narrative skeleton. Our full findings will be reported in a subsequent paper, though we shall give a brief preview here. Test subjects, paid volunteers all, are asked to complete cloze tests via the crowd-sourcing platform *CrowdFlower*. The test materials comprise five-act narratives from *@MetaphorMagnet*, in which one of the five acts is blank. The following is a sample test stimulus as shown to the subjects:

Fill in the missing **step 4** in this story,	Using the most apt action from this list:
1. *Develop your intellect*	4a. *Turn into a troll*
2. *Become a genius*	4b. *Turn into a bureaucrat*
3. *Nurture dispassionate minds*	4c. *Turn into a fascist*
4. _____	4d. *Turn into a sectarian*
5. *Lose your wits*	4e. *Turn into a harlot*

Initial experimental results are encouraging, and indicate that test subjects naturally gravitate toward *@MetaphorMagnet*'s choice for a given act and eschew the random distractors. This speaks to the design of its knowledge-base and to the soundness of its strategy for splicing narratives from this knowledge. However, an exception to this trend is to be found in act four, the act that announces the protagonist's arrival in category ***B***. Though the expected answer in the sample stimulus above is *Turn into a bureaucrat*, test subjects actually prefer *Turn into a fascist* by a significant margin. Act four thus seems to be the most subjective of the five acts, for at least two reasons: first, it follows the blended action of act three, which is still rooted in script ***A***, before the protagonist has overtly switched to category ***B***; secondly, act four is essentially an act of name-calling, so we suspect that the most extreme epithets win out if they seem at all apt. *Fascist* is a far more damning label than *Bureaucrat*, though bureaucrats are often described as though they truly were fascists, and real fascists often make much of their bureaucratic prowess in making the trains run on time. It seems that sentiment and aptness together dictate the preferred choice for act four, and so we shall conduct further tests of this hypothesis. For if verified, this hypothesis offers a rather obvious strategy for heightening the drama and humour of *@MetaphorMagnet*'s script blends. Though our scripts may never truly *collide*, they can embrace each other with passion.

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