John Benjamins Publishing Company

Communicating flexibly with metaphor

A complex of strengthening, elaboration, replacement, compounding and unrealism*

John Barnden
School of Computer Science, University of Birmingham, UK

This article argues that certain phenomena concerning metaphor that have been studied largely separately are in fact strongly interrelated, to the extent of forming an indivisible complex that should ideally be addressed in a unified way. The phenomena addressed here are metaphor *compounding*, metaphor *elaboration* (often called metaphor extension), metaphor *replacement*, metaphor *strength-modification*, and *unrealistic* source-domain situations. The interrelationships between phenomena that the article discusses include: the potential for unrealism and partial forms of replacement to be implicated in compounding; the way strength-modification can arise from compounding and replacement; and the affinity between elaboration and weak forms of replacement. The article also sketches how the author's ATT-Meta approach to metaphor, which has previously been presented as handling elaboration and compounding, and hence some types of strengthening, is suitable also for handling the other phenomena.

Keywords: metaphor in discourse, metaphor compounding and mixing, metaphor extension and elaboration, metaphor strengthening, metaphor understanding

1. Introduction

Barnden (2015a) studies the discourse phenomenon illustrated by the sentence "The internet isn't simply like crack, it is crack" (adapted from a real discourse

example cited below; crack meaning crack cocaine). Such examples have been claimed to show that "X is Y" metaphors are in some way(s) inherently stronger than their corresponding similes "X is like Y." Another view is propounded by Chiappe and Kennedy (2000), who provide experimental evidence that, in fact, an "X is Y" metaphor is not in general stronger than "X like Y" as regards degree of likeness. It's just that when the two forms are *correctively juxtaposed* as in, for instance, "X isn't simply like Y, it is Y", special effects arising from the juxtaposition itself create a large perceived likeness-degree difference.

The details of Chiappe and Kennedy's account or Barnden's (2015a) alternative account of these effects are not important here. Rather, the present article argues that the above strengthening phenomenon just occupies one highly specialized position within a rich complex or landscape of phenomena, and that this complex should be studied in a unified way, not piecemeal.

At another salient position within the complex is the case where one metaphor is corrected by an entirely new metaphor, as in "Libraries aren't [like] supermarkets, they're magical places where dreams begin" (cited below). This is a vivid case of the *replacement* of one metaphor or simile for a target X (libraries here) by another. Although this may initially look very different from the strengthening in the internet/crack example, where the same source (crack) is kept but only the linguistic form changes, we will see that there is a range of other cases, including partial forms of replacement, that together suggest a complex of highly interrelated phenomena, not a sharp division. Also, even for alleged strengthening examples such as the internet/crack one, there is the issue of whether (metaphorical) X-is-Y might be saying something qualitatively different from X-is-like-Y, and thus effecting a type of replacement as well as or instead of strengthening.

Compounding of metaphors is a further phenomenon that initially looks distinctly different from both replacement and strengthening. In one main form of compounding, a target X is conjointly illuminated by several different sources Y, Z, … presented close-by to each other in discourse. Although compounding has largely been studied as a separate topic, I will argue that it also should be placed within the above complex. Also within the complex are cases where an unrealistic situation is used as a source-domain scenario. In a particularly vivid example from Musolff (2007), the source scenario involves dinosaurs having thoughts about their own future extinction.

The purpose of the article is mainly to clarify the links between the above phenomena, together with metaphor elaboration and extension, as a prelude to efforts to construct detailed unified accounts of the phenomena. Some links between the phenomena have already been discussed by some authors, notably Kimmel (2010), who mentions that interlocutors cross-link, extend, elaborate, exemplify, question, limit and reject metaphors and in particular links some types

of compounding to elaboration. However, much remains to be elucidated about the linkages.

As Kimmel (2010) also indicates, the phenomena in this article should ideally be studied in the broader context of discourse relations or rhetorical relations (Mann & Thompson, 1988), concerned with the general question of how discourse segments, metaphorical or otherwise, elaborate on, contrast with, further explain or have other relationships with each other. The connection between metaphor in general and discourse/rhetorical relations, or discourse-coherence issues more generally, has received considerable attention. See, e.g., Allbritton (1995), Asher and Lascarides (2001), Hobbs (1992) and Sperber and Wilson (2008). The work of Kimmel (2010) is especially relevant, as it discusses mixed metaphor and other metaphor clustering in relation to clausal structure. Clearly the "corrective juxta-position" phenomenon illustrated by the examples above and appearing in many of our examples below makes clausal structure and discourse relations particular-ly salient. However, I cannot pursue these matters further in the present article.

The plan of the article is as follows. Section 2 lists and categorizes various examples of strengthening, elaboration and replacement arising in corrective jux-tapositions. Section 3 discusses examples in Section 2, drawing out some connec-tions. Section 4 discusses compounding, showing how it fits within the complex of phenomena. Section 5 provides further discussion. It introduces unrealistic source scenarios into the picture, and addresses the issue of what the unit of anal-ysis is in the notions of compounding, replacement, etc. Section 6 turns to the question of how a linguistic understanding theory could account for the phe-nomena in a unified way. It focusses on how the author's "ATT-Meta" theory of metaphor processing could help, while briefly mentioning some other potentially helpful theories. Section 7 concludes.

A further note about Section 6. The main thrust of this article is the complex of phenomena itself, not to promote any particular theory, whether ATT-Meta or another. One purpose in discussing ATT-Meta is to give a more concrete version of the phenomena and issues raised. Other theories may lead to different versions. An undercurrent here is that the very notions of compounding, replacement, elaboration, etc. are to some extent theory-relative.

One or two stances adopted in this article, largely for convenience and sim-plicity, need to be explained before we proceed. They are contentious, but the article does not fundamentally depend on their correctness. First, the article regards simile as just one surface form in which metaphor, as a deep linguistic and cognitive phenomenon, can be realized in words, with the equative or cat-egorizing form, "X is Y," being just one other option. The term "metaphor" can be used as a shorthand both for the underlying cognitive phenomenon and its various surface realizations. (This does *not* mean that the two forms – simile and

equative/categorizing – have the same semantic or pragmatic effect.) If the stance were not adopted, and the term "metaphor" not accepted as covering simile, the phenomena to be discussed would need to be broken down further according to whether similes or metaphors were involved: for example, instead of talking about compounding of metaphors, one would need to talk about the compounding of metaphor with metaphor, simile with simile, and metaphor with simile. However, the main thrust would not be affected.

Another contentious matter is whether a given sentence of form "X is like Y" is a literal comparison or, instead, a simile, or whether there is any clear distinction here. It might be claimed that, for instance, "Cabbage is like lettuce" is a literal comparison but "Pop music is like lettuce" is a simile; cf. claims about other examples in Glucksberg (2001). Along with, for example, Carston and Wearing (2011) I resist the idea of a clear distinction, and regard the issue as just one of degree: degree of conceptual distance between the two things and of how deep, subtle or idiosyncratic the relevant similarities are. Hence, I use "simile" to include what others might call literal comparisons. Barnden (2012, 2015a) discusses some of the issues, in particular rejecting a paraphrasability argument that has gained currency. However, the literal-comparison-versus-simile issue is again of secondary importance to this article. Accepting a firm distinction would again just mean that the phenomena would need to be catalogued in a more complex way, explicitly mentioning literal comparison as well as simile and metaphor.

2.   Some cases of corrective juxtaposition

The sentence "The internet isn't simply like crack, it is crack," can be viewed as performing a type of *correction,* and doing so by a type of *juxtaposition* (of a simile and corresponding X-is-Y metaphor in this case). Of course, if the sentence is interpreted as conveying an unusually high degree of likeness between the internet and crack, it is not saying that the simile is incorrect in stating a likeness. Rather, it is conveying that a stronger statement can be made. So it is implying that the simile, while correct, is deficient in not making the strength of the likeness clear. In Barnden (2015a) I briefly discuss the relationship of the phenomenon to metalinguistic negation (Carston, 1996; Horn, 1985) in general, as in "The house isn't just big, it's huge."

This section first lists corrective juxtaposition examples of the above sort, i.e. ones that (arguably) perform strengthening while keeping to the same source (crack in the example above). I will then go on to list examples that can instead be interpreted as performing metaphor elaboration, variation or replacement, with discussion of them deferred to Section 3. I classify the correction examples

in the present section into various types (Types A, B and C) for convenience of exposition. However, the divisions are not sharp, and indeed this fuzziness is part of the point of this article. I postpone compounding to Section 4, even though sometimes it also is manifested as a type of corrective juxtaposition.

In the text of the examples, I use italicization to highlight the segments of main interest for this article. Italicization in the original is indicated instead by percentage signs (%) around the wording. Further examples of Type A can be found in Barnden (2015a).

*Type A – **form correction:** Corrected part says that **X is like Y**. Correcting part says that **X is Y** and is plausibly to be taken metaphorically.*

(1) *"The Internet Isn't 'Like' Crack, It Is Crack"*[1]

(2) "*[Film director] Affleck's exploitation of [Joaquin] Phoenix [the actor] is like filming a drowning man and doing nothing* – in fact, *it isn't merely %like% that, that's %exactly% what it is.* We have seen similar cruelty in reality shows …"[2]

(3) "If people educate themselves to the point that they realize their own power and capabilities, huge governments will lose their audience. And make no mistake about it – *big government isn't just like show business, it is show business:* no audience, no show."[3]

In the next example, I include considerable prior context in order to facilitate later discussion.

(4) "In the Basque communities that Ott studies, people explain human conception in terms of cheese-making. When a woman becomes pregnant, people greet her with … 'you've been curdled.' [Curdling is] the action of rennet upon milk and the action of semen upon red blood. … Red blood is said to be formed in the womb when a women begins menstruation and continues to flow in the womb until menopause. … And it's only when the the blood has curdled, that the substance of the fetus is formed in the womb. … According to Ott, for the shepherd, *human semen isn't simply like rennet, it's a direct equivalent.* … In other words, rennet curdles milk to form a cheese in the same way that human semen curdles blood to form a baby."[4]

---

1.   http://thebillfold.com/2012/07/the-internet-isnt-like-crack-it-is-crack/ (accessed on 15 June 2015).

2.   http://ethicsalarms.com/2010/09/16/casey-affleck-worst-brother-in-law-of-the-year/ (accessed on 15 June 2015).

3.   http://www.arachnoid.com/lutusp/symbols.html (accessed on 15 June 2015).

4.   http://cheesepoet.wordpress.com/2009/03/07/of-brebis-and-babies (accessed on 15 June 2015).

The clause "it's a direct equivalent" appears to be locating the semen/rennet likeness as one element in an elaborate analogy, thereby strengthening the likeness beyond any similarity semen and rennet may have in themselves for instance through being liquids of a certain consistency and colour. We must of course be careful not to mistake something that another culture takes to be literal as a metaphor. It is possible, for instance, that the shepherds above view the property of curdling of blood in women's wombs as literally the same as the property of curdling of milk, not merely analogically related to it. But this is far from saying that they think of blood and milk themselves as the same liquid or of semen and rennet as the same liquid, and there is no pressure on us to take "it's a direct equivalent" as stating actual equality.

Type A is a subtype of *like/be* corrective juxtapositions, in that a likeness statement is being corrected by a non-literal statement just using the verb "to be.". Another important subtype is where the correcting, to-be part is best interpreted literally. This subtype is illustrated and discussed in Barnden (2015a) but not further addressed below. In the remaining Types below, an X-is-Y correcting or corrected part is always assumed to be metaphorical.

Examples (1)–(4) are primarily included here as arguably exhibiting strengthening of the likeness between the target and source. However, possible qualitative rather than strength-modulation effects of like/be corrective juxtapositions will be discussed in Section 3. Chiappe and Kennedy (2000) included cases of the reverse sort of correction in their study, where the X-is-Y form is corrected by the X-is-like-Y form, leading (arguably) to weakening of likeness. However, this case appears to be much less common in real discourse than the other direction of correction, though I know of no quantitative study of this. I will not consider it further.

Type B – elaborative correction: *Corrected part says or implies that* **X is [like] Y**. *Correcting part says or implies that* **X is [like] Y+** *where Y+ is a more specific or otherwise elaborated version of Y.*

  (5)   "If you have ever built a sand castle and tried to save your creation as the surf swept in and out, you know something of how legislators must feel as they try to solve Oregon's budget crisis. … Someone said, *'It isn't only like trying to move sand while the tide rushes in, it feels like we're trying to move it with a teaspoon!'*"[5]

---

5.   http://www.oregon.gov/DHS/vr/silc/docs/oil-44.pdf (accessed on 22 March 2012; no longer available).

(6)   "The Jerusalem Post … states that maintaining the delicate economic equilibrium *isn't merely like walking a tightrope, it's like walking an invisible one.*"[6]

(7)   "Paul [the apostle in the Bible] would not speak lightly of anyone, even of a child – he adds, that in 'another' respect it would be well to be like them – nay, *not only like children, but like 'infants'.*"[7]

(8)   "I remember once while talking to someone on the phone, I've been told: 'I've got to say this, your voice is like butter melting in my ears!'. Aww, *Daniel's voice isn't only like butter, it comes with milk and honey, it's delicious and sweet, …*"[8]

(9)   "This is a young woman with the best hair in town – lustrous, thick, swingy … So what did the network bozos do but stiff it up so that *it looked not merely like a birds' nest, but one in which the birds had also shat?*"[9]

(10) "I don't think [my night terrors] are panic attacks. … *The feeling isn't merely like feeling like you are going to die – it is like feeling you've been condemned to Hell for all of eternity.*"[10]

As regards (10), assuming that being condemned to Hell implies you are going to die before the trip to Hell, the correcting simile's source is an elaboration of the corrected simile's source.

   Although the examples above mostly use "like" in the correcting part as well as the corrected part, this is not essential to the phenomenon. The correcting part of (8) switches to a non-simile metaphorical form. All the examples use "like" in the corrected part as well, but that is because they were found by searching specifically for examples with such corrected parts.

Type C – Correction by **replacement** *(including major* **variation***): Corrected part says or implies X is [like] Y. Correcting part says or implies that X is [like] Z where Z is not an elaboration of Y.*

---

6. http://www.mfa.gov.il/MFA/Archive/Editorials/2008/Editorials+21-May-2008.htm (accessed on 15 June 2015).

7. http://www.godvine.com/bible/1-corinthians/14-20 (accessed on 15 June 2015).

8. http://annamulingbayan.multiply.com/journal/item/50 (accessed on 22 March 2012; no longer available).

9. http://www.reocities.com/CapitolHill/2381/ctvracism/ctv-haines6.html (accessed on 15 June 2015).

10. http://www.nightterrors.org/SMF/index.php?topic=2224.0 (accessed on 21 March 2012; SMF link inoperative at time of writing).

In Type B, the source item Y+ in the correcting part was, of course, different from the original source, Y. But it was nevertheless closely related to it by elaboration. In the present category, the source item, Z, in the correcting part is more radically different from Y, and is not best classified just as an elaboration of it. However, Z it may be a *variant* of Y in other ways.

(11)   "*Libraries aren't like supermarkets, they are magical places where dreams begin[.]*"[11]

The new source is presumably to be taken as radically different from the old source and hardly related at all.

(12)   "The progress of the souls around this chain of worlds, however, *is not merely like a circle in which the soul travels from the lowest to the highest, but is rather according to the plan of the spiral,* in which the journey always returns to the starting point, but on a higher plane of activity."[12]

A spiral is not a form of circle, so we don't have elaboration in any strict sense. But of course a spiral has a circular quality. So "variation" would be a good term here as opposed to elaboration or complete replacement.

(13)   "The lame duck is now cock of the walk."[13]

The "lame duck" is Tony Blair, ex-Prime Minister of the UK, who was originally at certain disadvantage with respect to an EU issue but then came to be in an advantageous position.

(14)   "Have I mentioned recently that there are no good statistics on [healthcare] wait times in the US, so *comparing the US to any other country isn't merely like comparing apples to oranges, it's like comparing apples to invisible pink unicorns?*"[14]

An unusual example in that the targets and sources of the corrected and correcting similes are themselves acts of comparison. The target, X, is the comparison of the US to another country, source Y is the comparison of apples to oranges, and source Z is the comparison of apples to invisible pink unicorns.

---

11. http://www.yorkshirepost.co.uk/news/features/libraries_aren_t_like_supermarkets_they_ are_magical_places_where_dreams_begin_1_4211646 (accessed on 15 June 2015).

12. http://www.sacred-texts.com/sro/sdr/sdr12.htm (accessed on 15 June 2015).

13. From an example drawn by Kimmel (2010) from a newspaper.

14. http://forums.penny-arcade.com/discussion/46821/us-healthcare-vs-the-world-wait-times/p4 (accessed on 15 June 2015).

(15)   "Because of their very small dimensions (even Jupiter is a dwarf compared with the Sun), the extreme weakness of the energy they radiate, and [other reasons], *the planets look not merely like poor relations but like strangers and intruders* in the sidereal system."[15]

Stereotypically a poor relation is not a stranger and intruder, so Z is arguably a distinct departure from Y.

3.   Discussion of examples so far

Here I will comment further on many, though not all, of the examples above. This will reveal certain issues at the core of this article. In the section after this one I will link the issues to metaphor compounding.

The type of example in correction Type A (keeping same source, but changing from *is like* to just *is*) has sometimes been taken in the literature to show that a metaphor of form *X is Y* is in some way intrinsically stronger than its corresponding simile *X is like Y* (see review in Chiappe & Kennedy, 2000; Barnden, 2015a). However, Chiappe and Kennedy (2000) have provided experimental evidence that in fact a (likeness-)strength difference doesn't exist in general, when the metaphor and simile occur separately from each other. Rather, it's the act of correctively juxtaposing them in the way done in the examples that provides strengthening. Barnden (2015a) broadly supports this view, but provides a novel account of how the strengthening arises that appears to have advantages over the Chiappe and Kennedy account. Those accounts are not important here. The significance of Type A for this article is that it is one way in which strengthening can be conveyed, complementing the ways strengthening can arise from Types B and C and other phenomena.

Notice here that one sense in which likeness between a target and a source might be strengthened is to strengthen the degree to which some particular source property applies to the target, when the property is strongly held by the source. This is one of the types of likeness strengthening covered by Chiappe and Kennedy (2000), the other being the addition of more shared properties. So, for example, in the case of example (1), because cocaine is highly addictive, the effect is plausibly to strengthen the degree to which the internet is to be viewed as addictive (as well as possibly to cause the understander to consider further shared properties). In short, while Type A examples are presented explicitly as conveying

---

15.   http://www.archive.org/stream/TheFutureOfMan/Future_of_Man_djvu.txt   (accessed   on 14 June 2015). From the book *The future of man* by Pierre Teilhard de Chardin.

strengthened *likeness* between target and source, they are thereby presented implicitly as potentially strengthening individual *target properties*. This will provide a link to the strengthening arising from examples of other types. But, on the other hand, likeness-strengthening could instead serve to *weaken* the application of a property to the target, when that property is only weakly held by the source. For example, strengthening the likeness of a particular adult to a small child could weaken a knowledgeability property, in a suitable context.

Turning to example (4), we find the corrective juxtaposition "human semen isn't simply like rennet, it's a direct equivalent." Given the preceding text, the corrective juxtaposition appears to be conveying that semen corresponds to rennet within an elaborate analogy of human reproduction with cheesemaking. This analogy includes a semen/rennet link suggested by the corrected simile as just one component. This simile, taken by itself, seems in context to be getting just at their intrinsic physical similarity. The correcting part of the juxtaposition, in conjunction with the context, therefore implicitly expands a simple physical similarity to become a complicated, structured analogy, delivering a much stronger likeness overall. This expansion vividly contrasts with the possibility of just strengthening individual properties as mentioned above.

However, it is theoretically possible that a given Type A example is not performing strengthening at all, or doing something else as well as strengthening, because similes may to some extent rely on different sorts of grounds of likeness from the grounds of their corresponding X-is-Y metaphors. For instance, it has been claimed that X-is-Y metaphors may involve emergent features to a greater extent than the corresponding similes do (Glucksberg & Haught, 2006; Glucksberg, 2008, 2011). Aisenman (1999) claims that speakers prefer simile for mapping non-relational predicates, but X-is-Y metaphor for mapping relational predicates. Littlemore and Low (2006, pp. 41–43) say that similes tend to focus attention on typical or central characteristics of the source while metaphors may involve peripheral characteristics. These claims, if true, raise the possibility that a correction of Type A can add new likeness grounds that are preferred for the X-is-Y form, where these grounds could either supplant or supplement the grounds the understander reads into the simile. This effect can be viewed as an implicit elaboration or variation of the source scenario, by making alternative or additional features of it salient and operative in the metaphor.

Turning to correction Type B, there is a new metaphorical source Y+ that is a further-specified or otherwise elaborated version of an original metaphorical source, Y. Source Y is still fully part of or implicit in Y+. In example (5) [*It isn't only like trying to move sand while the tide rushes in, it feels like we're trying to move it with a teaspoon!*], the original source scenario, of moving sand while the tide rushes in, is augmented with a new feature, namely that the moving is being done

with a teaspoon. Clearly this addition intensifies the difficulty and lengthiness of moving the sand, and hence the difficulty and lengthiness in the target scenario (the problem of dealing with the budget crisis). Thus, aspects of the metaphor's message have been strengthened. Example (6) [*isn't merely like walking a tight-rope, it's like walking an invisible one*] is similar, because of the added difficulty of and danger in walking a tightrope when it is invisible.

Example (7) [*not only like children, but like 'infants.'*] is again somewhat similar, although instead of adding a distinctly new feature it further specifies an existing feature: the "children" are now required to be "infants." But this specification can be analysed as an addition, namely of a further age restriction. The specification under certain assumptions strengthens the message that we should be as free of malice as children are (according to the document from which the example is taken).

In example (8) [*Daniel's voice isn't only like butter, it comes with milk and honey, …*] there is a vivid elaboration that strengthens the pleasantness of Daniel's voice. Example (9) [*it looked not merely like a birds' nest, but one in which the birds had also shat?*], again through vivid elaboration, strengthens the unpleasantness of the woman's hair arrangement.

Example (10) [*The feeling isn't merely like feeling like you are going to die – it is like feeling you've been condemned to Hell for all of eternity*] can be viewed as performing elaboration by addition of a new element, being condemned to Hell for all eternity. The negative feeling in the source scenario is strengthened by the addition, so the target feeling being addressed gets strengthened.

We can move now to correction Type C [source Y replaced by new, non-elaborative source Z]. In example (11) [*Libraries aren't like supermarkets, they are magical places where dreams begin*], the new source term (magical places where dreams begin) completely replaces, and arguably contrasts intensely with, the original source (supermarkets). But in (12) [*is not merely like a circle in which the soul travels from the lowest to the highest, but is rather according to the plan of the spiral*], we have variation of the source rather than outright replacement, as noted above. The original source, movement is a circle, is being replaced by something different, spiralling, with new qualities, while preserving some of the qualities supplied by the circle metaphor.

Example (14) replaces the original source – the act to comparing apples to oranges – by a very different source – the act of comparing apples to invisible pink unicorns. The replacement is not wholesale because of course the new source is still a comparison act between two things that are qualitatively very different, and because in both cases one side of the comparison is apples. The overall effect is to strengthen the difficulty of the comparison of wait times in the US to those of other countries. But also a reason is highlighted for the strengthened difficulty,

namely the unavailability of good statistics in the US in the first place, metaphorized as the invisibility and unreality of the unicorns.

To take stock so far, we see a complicated interplay between different phenomena cutting across the different Types of correction. Strengthening of target properties is done not only by many examples of Type A but also by all the above examples of Type B [elaboration of source] and some of those of Type C [new source]. Examples in Type C overtly just replace one metaphorical source item by another but in some cases keep aspects of the original metaphorical conception: thus they may do either partial or total replacement. Also, in the partial case they can be said to elaborate the segment that they do keep by adding something new to it. Finally, elaboration can of course be technically viewed as replacement: of a source Y by an elaborated source Y+. However, I will continue to use replacement to mean non-additive types of change.

4.   Relationship to compounding

Metaphor compounding is usually discussed as a topic all of its own, though some links to elaboration, replacement, etc. have been noted (e.g., by Kimmel, 2010). One type of compounding of metaphor is illustrated in a short description of the issue of how to develop and support the National Health Service (NHS) in the UK.[16] The speaker said that the NHS issue is the "bedrock" of Labour's election campaign, and immediately went on to say that it has been "rolling on remorselessly." There are three different metaphorical ways in which the NHS issue is being described here: one way is of the issue as bedrock; one of the issue as something that can roll; and one of the issue as a cognitive agent that can act remorselessly. The three ways are being used with a coordinated effect rather than creating a shift of what is being claimed about the NHS; hence it is appropriate to talk of compounding rather than replacement.

Because the *same* target is being described in three different metaphorical ways, I use the term *same-target parallel compounding.* This is a logical parallelism and could for instance amount to a temporal interleaving of the effects of the different metaphorical conceptions, not necessarily a temporal parallelism. Same-target parallel compounding (under different labels) has been discussed by many authors, both within and outside the Cognitive Linguistics tradition, e.g. by Lakoff and Johnson (1980) and White (1996), respectively. It is an area of research of increasing importance – see notably the collection by Gibbs (2016). I

---

16. Heard on the BBC Radio 4 station, UK, 1pm news, 27th January 2015.

have in the past used the terms "compounding" and "mixing" interchangeably. In the present article I more carefully use "compounding" for the presumed *cognitive* phenomenon of conjoint use of different metaphorical conceptions to think about a target during language understanding, leaving "mixing" to refer to the *surface* phenomenon of the co-use of suitably different linguistic metaphors close-by in discourse. A given case of mixing might be understood via either compounding or replacement, depending on circumstances.

Another terminological point is that the term "mixing" is typically used in both academic and non-academic writing to mean cases where the co-usage is infelicitous in some way. Nevertheless, I do not include this in my notions of mixing or compounding, and my main concern is where the co-usage is felicitous.

The metaphorical phraseology in the NHS example is so entrenched that it could argued that stored, standard metaphorical meanings of "bedrock," "rolling on" and "remorseless" are accessed directly, and meaning is not worked out via the literal notions of these terms. Of more interest in this article are cases where it is plausible that the literal meanings of the source terms need to be accessed to work out the meaning of the passage. The following passage (from a novel by Oates, 2002, p. 129) is arguably of this type:

(16)   "My so-called personality had always been a costume I put on fumblingly, and removed with vague, perplexed fingers; it shifted depending on circumstances, like unfastened cargo in the hold of a ship. … [three sentences] … The personalities I assembled never lasted long. Like quilts carelessly sewn together, I periodically fell apart."

Here the person is describing her personality at any given point in her existence as being a costume and as quilts sewn together. (This is a reasonable analysis provided the "I" of "I periodically fell apart" can be taken to refer metonymically to the personality that the person has at any given moment, rather than to the full person.) We have here an illustration of a difficulty of counting source concepts: should we think of the costume and the assembly of quilts as the same thing (i.e., the costume is made of sewn-together quilts) or as different things? In the former approach, we just have a continued, elaborated use of the same overall metaphorical conception. I will mainly follow this approach here for definiteness, but will touch briefly on the other one.

But the example also describes personality in a very different metaphorical way, one that uses unfastened cargo on a ship as the source subject-matter. Here we have an illustration of another complication that frequently arises in compounding, namely uncertainty between a parallel analysis and a serial one. Is her *personality* at any point being cast as ship's cargo, this being in parallel with the casting of her personality as a costume? Or is the *costume* being metaphorically

cast as ship's cargo, so that we have serial compounding (chaining)? I will assume that the parallel account is the more reasonable one in this instance.

Now, when the cargo metaphor is introduced, we might wonder whether the original costume metaphor (i.e., costume-based metaphorical conception) is simply being *replaced.* This immediately illustrates a tension between compounding and replacement, namely that if metaphorical conceptions are mixed, i.e. used close-by in discourse, there is often a question as to whether the target is being described in both metaphorical ways at once, so that there is compounding, or instead one way is replacing the other. But, in (16), the reversion to the costume metaphor in quilt form suggests that we do have a case of compounding: the costume conception and the cargo conception are both available to the understander to draw upon at will.

This simultaneous availability of different metaphorical conceptions does not necessarily mean they are somehow unified. It just means that they are both still available for illuminating the target, even though the hearer may (or may not) do this by keeping the ability to continually switch back and forth in his/her mind between the two conceptions. By replacement of one metaphorical conception by another, on the other hand, I mean that a conception is abandoned in favour of another. The abandonment is in the sense of no longer keeping the metaphor's effects active, rather than now contradicting those effects, though this is one special possibility.

Somewhat different aspects of the personality profile of the person are being addressed by the two metaphorical conceptions. Normally the putting-on, taking-off or changing of a costume are deliberate and purposeful, but the shifting of cargo is not. So the default deliberateness/purposefulness aspects of the costume scenario are being suppressed when the cargo metaphor is introduced. This suppression is also consonant with the idea expressed in the passage that the costumes are carelessly constructed, and thus fall apart accidentally. In the special case of a costume made of loosely attached quilts, they can easily fall apart by accident.

Thus, while compounding may be the main basis of an analysis of the passage, nevertheless part of the work of the compounding of the costume and cargo metaphors is to *replace* a deliberateness connotation of the original costume metaphor by a non-deliberateness connotation, rather than just to add new information about the person's personality. So, we have a partial replacement of the effect of the original metaphor. But, interestingly, the effect is bolstered also by *elaborating* the original clothing metaphor by bringing in the quilts. This specialization to quilts creates an exceptional aspect of the metaphorical source scenario – namely that the clothing can easily fall apart accidentally, which is not true of most clothing. Thus an elaboration and the addition of a new metaphorical view conspire in the overall compounding to generate a replacement.

One important lesson here about elaboration is that, while it is often aimed at strengthening some effect(s) of a metaphorical description on the target, as in the Type B elaborative correction examples, it can also cancel some features of the source concept and thereby weaken an effect on the target.

So far we have assumed that the quilts serve to elaborate the costume metaphor, but we should also consider the possibility that it introduces a separate metaphorical conception, so that we have one metaphorical source scenario in which there is a costume, and another, different one in which there are some quilts, acting presumably as bedclothes. It is now less obvious that there is any compounding of the three metaphorical conceptions, and it is in principle possible that the cargo one entirely replaces the costume one, which vanishes from the reader's thoughts, and is replaced in turn by the quilts one, so that there is no compounding of any of the metaphors with each other. This possibility deserves further investigation, but it seems implausible that, if someone is actively thinking in terms of the metaphor source scenarios, as we are assuming, they would not notice the fact that the first and third metaphors both involve cloth that can cover the human body, albeit in different ways (as worn clothes or as bedclothes respectively). Thus, it seems fair to say that the quilts metaphor is at most a variation of the costume metaphor rather than completely distinct (cf. the variation cases discussed above under the heading of Type C), and the quilts metaphor does restore to mind the costume conception, much as when we assumed the relationship was one of elaboration.

In any case, under either assumption about the relationship of the costume and quilts metaphors to each other, (16) shows that compounding does not always merely "add" metaphorical ways of conceiving something together: we can have partial replacement of one or more of the ways as well (here the replacement of the deliberateness connotation mentioned above). The following example of compounding (in Grossman, 2002) is a particularly vivid case of this, in which moreover the compounding is presented by means of corrective juxtaposition. The full passage is long and so is not quoted in full here. It starts with

> "The recent history of Afghanistan demonstrates that a new war in that country would not simply be like the U.S. war in Vietnam. The war would instead be like Vietnam, Yugoslavia, Colombia and Somalia all rolled into one. Afghanistan offers a package deal of multiple disasters, loaded with extra bonus features."

Later we find "Afghanistan is Vietnam," then some explanation of this view, and then "But Afghanistan is not simply like Vietnam," some more explanation, then "Afghanistan is Yugoslavia," some explanation of this, then "But Afghanistan is not simply like Yugoslavia," and so forth, adding in Colombia and then Somalia in the same cumulative way. The inclusion of "not *simply* like" [my emphasis] at each

stage shows that the author is adding a new metaphorical way of thinking about Afghanistan to be considered in conjunction with the previous ones, not *replacing* the immediately preceding way.

A complication with the example is that it is not the countries just in their own right that are being discussed, but rather the political/military situations involving those countries and the USA and its allies. In effect there are metonymic jumps from the countries as such to those situations, and it is these situations that are being compared to each other, not just the countries in a narrow sense. I suppress explicit mention of this complication in the discussion below.

Clearly, the speaker is adding in more and more problems by introducing the succession of metaphorical conceptions, and is in that way strengthening the overall message. This arises as follows, in more detail. According to the text, "Vietnam became a unified state with a stable central government and a single core ethnic identity. Afghanistan, on the other hand, has never had a strong central government and is split into ethnic enclaves." This difference from Vietnam is the basis for the Afghanistan-is-Yugoslavia metaphor, in that Yugoslavia was also ethnically fragmented. So, the Yugoslavia metaphor is adding in the problem of fragmentation. But: "Serbian and Croatian voters eventually ousted their ultra-nationalist leaders. Their new countries have industrial economies, unlike impoverished Afghanistan, which has long been forced to rely on an illegal underground drug economy." So this difference of Afghanistan from Yugoslavia motivates bringing in a drug problem akin to that of Colombia: "Just as all sides in the Colombian civil war have profited from the cocaine trade, all Afghan factions together form one of the global centers of the opium trade." But Afghanistan differs from Colombia in not having strong institutions and coherent political parties. This motivates bringing in Somalia to highlight *that* additional problem.

Thus, compounding can serve to strengthen a unified message – here, the degree of disaster in the Afghanistan situation by bringing out more and more problems – rather than more neutrally to bring out disparate aspects of a variegated message.

But, moreover, even though no metaphorical way of describing Afghanistan in the sequence is completely replaced by a later one, there is a sense in which there is partial replacement. In the sequence, each new country Y2 that is brought in as a new metaphorical source highlights a difference between Afghanistan and the previous country source Y1 mentioned, blocking a possible wrong inference about Afghanistan could possibly have been made on the basis of Y1.

5.   Further discussion

5.1   Amounts of replacement

The amount of replacement, if any, caused by a case of compounding is highly variable. There is a varying degree of pressure to suppress or replace parts of some of the source scenarios themselves or some of the effects of the source scenarios on the targets. The Afghanistan example and example (16) [personality as clothes/cargo/quilts] involve partial replacement, to different extents, whereas arguably the following example (from Kittay, 1989, p. 119) may not involve replacement at all:

(17)   "These unconscious activities underlie our conscious thoughts, and the latter are but a *taming, censoring,* and making reasonable [of] the *well-springs* of mental activity."

This can perhaps be understood by adding together completely separate, non-conflicting understandings of (i) conscious thoughts "taming" unconscious ones, (ii) conscious thoughts "censoring" unconscious ones, and (iii) unconscious thoughts being "well-springs" of conscious ones. But there may be no objective fact of the matter here. A hearer who develops a more developed interpretation of each metaphorical description may encounter a need for replacement whereas a hearer who develops a simpler interpretation may not. Thus, the taming could be understood simply as making the output of unconscious thinking more ordered than it would otherwise be, whereas the censoring is simply a matter of cutting out thoughts that are deemed deficient or dangerous in some way. But a more developed interpretation that pays attention to the details of the source could have it that the taming metaphor casts unconscious thought as a wild, non-human animal whereas the censoring metaphor casts unconscious thought as a rational person. These could be reconciled in a unified source scenario by viewing unconscious thought as a partly rational person who nevertheless acts wildly and dangerously, throwing away the non-human animal aspect.

On the other hand, even with highly-developed source scenarios, we cannot just assume that the hearer does seek to reconcile them: the two metaphorical descriptions (using taming, censoring) could in principle be handled entirely separately, thereby providing their own separate messages about the target. Thus the question of the amount of replacement a given hearer performs is a matter of how richly he interprets each individual metaphor and how conjointly he chooses to interpret them.

5.2   Unrealistic variants of source conceptions

In example (6) [*isn't merely like walking a tightrope, it's like walking an invisible one*], a tightrope metaphor is elaborated to involve an invisible tightrope. I assume for the moment that the source concept being appealed to here is that of a tightrope that is invisible because of its own constitution, rather than because of darkness or some other impediment of the walker's vision. Under this assumption, the concept is non-veridical – a physical tightrope cannot be completely invisible (with current technology). In this way, (6) involves a source scenario that is (extremely) *unrealistic*.

But the hearer might not to make the assumption above, and might instead imagine the tightrope being invisible because of surrounding darkness, say. In this case, there is milder unrealism, in that it would merely be highly unusual for someone to walk on a tightrope in complete darkness.

In example (14) [apples/oranges/unicorns], we have the strange notion of an invisible pink unicorn as source. How could something pink be invisible? Note here that it is much clearer than in (6) that it is the alleged intrinsic properties of the object that are at issue, not prevailing lighting conditions or other visual impediments.

The type of elaboration or variation involved in (16), if interpreted in such a way that the quilts are used as clothing, introduces unrealism, given that the standard intended function of quilts is as bedclothes, although quilts could in principle be worn as clothes. An unrealistic source scenario could be in play in an example given by Kimmel (2010), "the mountain of red tape which swamps business, …" (taken from a newspaper). If this is interpreted with the aid of the literal meanings of "mountain" and "red tape," and a unified source assumption is constructed, then that scenario is highly unrealistic though not physically impossible.

An example of (extreme) unrealism is Musolff's (2007) example of a metaphor where the source involves a dinosaur unwilling to prevent its own extinction. Wee (2003) gives an example featuring octopuses with any number of tentacles, used as a source in a popular-scientific explanation of connectionist networks, with tentacles corresponding to inter-neuron links. In both examples the variations are ad hoc and quite possibly novel to the understander, as the variations in (6) [tightrope] and (16)[costume/cargo/quilts] may be also. But unreal source situations do not have to be unfamiliar. It is commonly observed that metaphorical source conceptions can often involve untrue but widely-adopted stereotypes, such as that gorillas are aggressive (see, e.g., Fogelin, 2011). Such stereotypes provide unrealistic but familiar source situations.

The phenomenon of unfamiliar unrealistic sources is important to consider because in most theories and discussions of metaphor, the assumption is that the

source knowledge is ordinary long-term knowledge about *familiar* things, even though false stereotypes can be involved or the things can be mythical (Hell, unicorns, etc.). Yet, the unfamiliarity in examples above does not seem to be a bar to understanding.

Unrealistic variation has salient relationships to other phenomena of this article. It is by definition a possible aspect of the general phenomena of elaboration and variation of metaphor. In common with elaboration and variation more generally, it can serve the purposes of strengthening, as shown by example (6) [tightrope], and indeed it is particularly good at providing strengthening, because unrealistic elements are unusual and striking. But it is also related to compounding. Consider a case of compounding that is handled by trying to combine the different sources into one coherent source, thereby possibly causing suppressions and replacements of aspects of sources. These suppressions and replacements may create a type of unrealism. For instance, in the taming/censoring example, (17), the entity tamed is changed from a wild non-human animal to a wildly acting human, in one way of interpreting the passage.

5.3   What is being elaborated, replaced, compounded, etc.

At various times this article has talked of the elaboration, replacement, compounding, etc. of *metaphors*, as if it was clear what sort of thing it is that is being elaborated, etc. – i.e., what the appropriate unit of analysis is. At other times the article has talked of replacing, compounding, … metaphorical ways of describing/casting things, or metaphorical conceptions, or metaphorical scenarios, or of replacing or adding to an effect that a particular metaphorical conception has on the target. And of course in the literature at large there is a similar issue: for instance, the term "mixed metaphor" is widely used as if it was clear *a priori* what sort of thing one was mixing – but this is a highly theory-relative matter. Such vagueness and variety is largely inevitable in this article in particular, as my intent has been to lay out phenomena in a way that other researchers with different views of metaphor can accept as existing in some form and related to each other as described. For instance, I hope it is uncontroversial that in cases described as involving replacement, there has been some sort of shift of how something is being metaphorically thought about; in cases described as compounding, there is some sort of combination of ways of thinking about the target, where those ways could have been used separately.

But, having laid the the phenomena out, it is now useful to summarize more specifically various possibilities for what is replaced, compounded, etc. The plausibility of the possibilities to a given researcher will be relative to his/her own theoretical world-view.

One possibility is that that there are conceptual metaphors in the sense of conceptual metaphor theory (Lakoff, 1993; Lakoff & Johnson, 1980), i.e. bundles of coordinated mappings. Replacement might therefore be of a whole bundle by a different one. Compounding might be the conjoint use of two or more different, whole bundles. Elaboration could sometimes involve the addition of further mappings to a bundle.

Another possibility, provided there are things called mappings and irrespective of whether they are packaged into bundles or not, is that an individual mapping is replaced, or (for compounding) mappings that are normally used separately are used conjointly, or (for elaboration) the nature of an individual mapping is varied in some way (e.g., restricted or broadened in some respect). If mappings do form bundles, then a mapping in a bundle might be replaced by a different mapping, either an entirely new one or one from another bundle. Pursuing the latter possibility further, a few mappings each from two different bundles might form a new temporary bundle (so that the bundles are in effect mixed together), and so forth.

But compounding and replacement might be analysed at base as a matter of replacing parts of a source scenario, or combining two different source scenarios. This may or may not lead to new or different mappings being used, but if they are then that is a side effect rather than the core of the phenomenon. The possibilities here are similar to those arising for elaboration, as follows. Elaboration often lends itself well to the thought that what is elaborated is just the metaphorical source scenario, without necessarily the set of deployed mappings changing. For instance, in the tightrope example (6), there is initially a metaphorical scenario of someone walking on a tightrope, implying difficulty, danger, and in particular the possibility of falling undesirably into one side or another of a terrain beneath. The elaboration then consist of adding that the tightrope is invisible. What happens here might be just an intensification of the difficulty and danger, with no new mapping being needed, if the original mapping can handle different intensities. Similarly, in example (5) [moving sand with a teaspoon], the addition of the teaspoon causes extra difficulty and time-consumption. It may be that, according to the metaphor theory assumed, the mappings handling the difficulty, time-consumption, etc. are already used for the non-elaborated case: they might then just respond to the intensification of, say, difficulty in the source by intensifying the corresponding difficulty in the target.

Likewise, in the costume source scenario in (16), there is the default inference that clothes come off through deliberate action by the wearer. Let us assume that there is a mapping that carries degrees of (non-)deliberateness over to the wearer.

Now, suppose we now take the clothes to be the carelessly thrown-together quilts. The deliberateness in the source scenario is now defeated by the strong possibility of the clothes accidentally falling off. The same mapping as just assumed will convey this non-deliberateness to the target.

Importantly also, a replacement can result from inference about the source scenario rather than directly from some overt element in the sentence. In our example the initial premise was that there were clothes. Then a specification was added, namely that the clothes are the quilts. So far we just have addition. This then causes replacement of a default inference by an exception, and a consequent replacement of effect on the target.

An elaboration of a source scenario can of course lead to opportunities for recruiting new mappings. For example, the addition of invisibility of the tightrope could lead the understander to bring in a mapping that relates seeing to understanding, so that an additional effect would now be that the the very nature of the difficulty being described was poorly understood. So an elaboration of a source *scenario* can lead to compounding of *mappings* in the sense of conjoint use of mappings that are standardly used separately.

Finally, notions of compounding and replacement at the level of source subject matter may rely on some claim that the source domains of two metaphors that are nearby in discourse are qualitatively different to some extent. But in common with a number of other researchers I dispute the notion that in metaphor there is clear-cut source domain (or target) domain at all (see arguments and review in Barnden, 2010), so the question of whether compounding or replacement is happening could be a matter of degree and/or of particular theoretical view, For instance, Kimmel (2010) gives operational criteria as to when two metaphors have source subject matters that are sufficiently different for the term "mixed metaphor" to apply, but his criterion relies in a particular way on precepts of conceptual metaphor theory, and even then is just one among many that can be devised on that basis.

The distinctions between the phenomena are potentially also an understander-relative matter to a degree. What could be interpreted by a replacement process by one hearer might be, say, interpreted by compounding or elaboration by another, depending on the extent and type of knowledge and beliefs the understanders have about the various subject matters. Supermarkets may, for some, be magical places where dreams begin.

In the next section, some indication is given of how some of the above theoretical possibilities are specifically realized in a particular approach to metaphor.

6. Handling the phenomena

Clearly the next question is what sort of processing framework for language understanding and production would be appropriate for dealing with the phenomena, and doing so in a suitably joined-up fashion. Certain candidates suggest themselves. One is the framework propounded in Gibbs and Santa Cruz (2012), where conceptual metaphors come into and out of play in a dynamic, potentially overlapping way. Relevance Theory (Sperber & Wilson, 1995, 2008; Wilson & Carston, 2006), with its tendency to break down divisions between different types of figurative phenomena, and its concentration on the overall pragmatics of discourse and how understanding exploits context, would be an appropriate setting. Conceptual Integration (or Blending) Theory (Fauconnier & Turner, 2008; Turner & Fauconnier, 1995) is also a natural candidate for consideration, especially as blend spaces naturally lend themselves to handling aspects of compounding.

In the following I will suggest that two key, general features of the ATT-Meta approach to metaphor (Barnden, 2001, 2006, 2008, 2015b, 2016; Barnden & Lee, 2002) are useful for a unified treatment of the phenomena in this article. I have argued elsewhere in detail (Barnden, 2015b, 2016) that these features, namely *view-neutral mapping adjuncts* and *non-bundled, self-policing mappings* are at the core of how ATT-Meta copes with elaboration and compounding (both parallel and serial). The comments below will summarize why the features are useful for elaboration and compounding of the same-target parallel sort, and show why they can be expected also to be useful for replacement.

I will also point out that a further feature of ATT-Meta – the use of *pretence* or *fictional* spaces – is beneficial for handling unrealistic source scenarios. On the other hand, because ATT-Meta research to date has focussed on reasoning matters rather than on surface form and the exact structure of discourse, it has nothing currently to offer on the effects of pure form-changes as in Type A correction examples [i.e.: same source but with form changed from "is like" to "is"].

6.1   Key features of ATT-Meta

Although originally inspired by conceptual metaphor theory, the ATT-Meta approach does not reify explicit bundles of mappings as constructs such as conceptual metaphors. Rather, the approach realizes a possibility mentioned in Section 5.3 and proposes that what is real at the cognitive level is individual mappings themselves, with no regimentation into bundles. However, it is still useful, at a heuristic level of describing the theory to talk of *metaphorical views*, with mappings involved in views. A view can involve several mappings and a given

mapping can be involved in several views. Also, a mapping is more precisely a *mapping rule* whose activation in a particular situation creates *individual correspondences* between items. For example, one metaphorical view explored with the approach is IDEAS AS PHYSICAL OBJECTS, and one mapping rule involved in this view can be intuitively glossed as follows:

> IF some idea J is being metaphorically viewed as a physical object
> THEN (by default) physical operation on J by a person P in the source scenario corresponds to P's mental usage of J in the target scenario.

This mapping rule is relevant to sentences such as "John pushed the idea aside." Very briefly: From the literal meaning of this, it can be inferred that the particular idea in question is being metaphorically viewed as a physical object. So the metaphorical source scenario now contains the fact that John pushed the idea aside and that it is a physical object. The latter fact then allows the mapping rule above to put John's physical operation on the particular idea in correspondence with John's mentally acting upon that idea in some way. Notice how specific this "individual correspondence" is. It does not embrace other ideas or other people.

The IF condition is called the mapping rule's *guard*. Guards are the only concrete realization of the intuition that mapping rules are involved in specific metaphorical views, and indeed what those views are is a matter of a theoretical observer's construal. For instance, another rule might have a guard similar to the one above but requiring the idea to be a living being, not just a physical object in general. It is then a matter of theoretical construal and convenience whether there is a view called IDEAS AS LIVING OBJECTS involving the rule. Notice that irrespective of this, the rule is involved in IDEAS AS PHYSICAL OBJECS if the rule above is. Also, a guard can be a logical combination of conditions. The different subconditions in a guard can be seen as relating the rule to different views. Another consequence of the approach is that two rules can be involved in some of the same views, but either rule can be involved in views not involving the other rule.

As well as *view-specific* mapping rules such as the one above, there are also, crucially, *view-neutral* mapping rules. To continue exploring our example above, the pushing-aside implies that the idea became relatively inaccessible physically – i.e. *became relatively difficult* to be operated upon physically by John. This is an inferred element of the source scenario. But we would like to be able to transfer this *becoming* and *relative difficulty* to the target scenario, to get the inference that the idea became relatively difficult to be acted upon mentally by John. This transfer of becoming and relative difficulty cannot be done by the view-specific rule displayed above but is instead done by mapping rules called *view-neutral mapping adjuncts*, whose form can be seen in Barnden (2015b) and Barnden (2016). The point here is that many qualities correspond in metaphor between source and

target, irrespective of what the particular metaphorical views in play are. Amongst these qualities are matters of difficulty, ease, causation, emotion, value judgments, mental states, time-course, modal qualities such as possibility, etc.

View-specific mappings in ATT-Meta are at a similar level of granularity to the primary mappings of Grady's (1997) reformulation of conceptual metaphor theory. View-neutral mappings in a sense take Grady's programme a further step, by factoring out yet more general-purpose aspects from specific metaphorical views or conceptual metaphors. View-neutral mapping is also related to the principle in the Structure-Mapping Theory of analogy (Gentner, 1983; Gentner & Bowdle, 2008) that certain types of structure should be transferred from source to target, irrespective of the details of the analogy; however, ATT-Meta's view-neutral mapping is in one sense more specific in identifying particular classes of contentful properties and relations to transfer, but in another sense more general in not being confined to higher-order relations.

While work on ATT-Meta to date has mostly been confined to cases where mapping rules are part of an understander's long-term knowledge, the approach allows view-specific mappings to be dynamically constructed during understanding. This is appropriate to many of the examples in this paper. For instance, viewing the Afghanistan situation as metaphorically related to the Somalia situation could well be new to an understander. On encountering utterances expressing or presupposing the metaphor, the understander can, I will assume, construct something that is roughly of form

> IF Afghanistan is being metaphorically viewed as Somalia
> THEN Afghanistan's political structure corresponds to Somalia's

or perhaps several mappings that address different aspects of the political structure.

The use of mappings in ATT-Meta is integrated in a completely thorough and flexible way with inference in general. There can be many other IF-THEN rules that encapsulate ordinary aspects of life, such as: IF someone is a student THEN (probably) they are poor. There is a general reasoning engine that pursues inference according to the rules, and the engine is blind as to to whether the rules are mapping rules or "ordinary" rules such as the student one. This means that during understanding of metaphorical utterances, rules are just applied when it is most appropriate to do so for the current understanding task, and the process of understanding can be any arbitrary interleaving of application of mapping rules to create correspondences, use of those correspondences to carry information between source and target, and ordinary inference steps. Ordinary inference steps can in particular ones that serve to elaborate the source scenario and ones that serve to elaborate the target scenario.

Notice also that a powerful contribution to ATT-Meta's flexibility is that guards can pick up on the results of inference. It may not be apparent immediately from a sentence that some idea is being viewed as living object – this might only arise by elaborative inference in the source scenario, target scenario, or both. At that point, a mapping rule with a guard concerning ideas being viewed as living beings can come into play.

Furthermore, the reasoning is uncertain. In the implemented ATT-Meta system this does not involve numerical, probabilistic reasoning but a qualitative form of uncertain reasoning that consists largely of handling defaults and exceptions, for example the default that students are poor and the exception that students who are professional footballers are rich. In particular, all mapping rules (view-specific or view-neutral) in ATT-Meta are defaults, in the sense that an individual correspondence between something in the source scenario and something in the target scenario can be cancelled if there is sufficient special evidence.

I can now turn to issues of compounding, replacement, etc.

6.2   Compounding, replacement and unrealistic variation

Picking up on a theme from Section 5.3, the ATT-Meta approach to compounding (Barnden, 2016, with a preliminary account in Lee & Barnden, 2001) gets its power precisely by refraining from reifying bundles of mappings as specific cognitive constructs, as opposed to just having unbundled mappings, as explained above. Thus, the compounding of multi-mapping *views* resides merely at a theoretical level. What the cognitive agent him/her/itself does, concretely, is to co-use individual view-specific mapping rules that are theoretically construable as belonging to the views in question. All the view-specific mapping rules (or mappings, for short) operate independently of each other. Mappings from different views can be used in concert with each other in an opportunistic way dictated by particular circumstances arising in particular discourse segments. For example, if Afghanistan is being viewed both as Yugoslavia and as Somalia, and we have mappings with a guard about Somalia as above and mappings with guards about Yugoslavia, then both sets of mappings are available for specifying target/source correspondences. Also, insofar as much of metaphorical meaning is created by the action of view-neutral rather than view-specific mappings, the fact that there may be a mixture of different specific views recedes in importance.

Now, individual correspondences (see above) that have been set up by the action of mapping rules are just hypotheses like any other, and can be explicitly supported and countered by other considerations. So, suppose the understander has processed the Afghanistan as Vietnam metaphor and happens to have

constructed a mapping or mappings that have put their political structures into correspondence. Now along comes the Afghanistan as Somalia metaphor and its surrounding commentary. The understanding process can, given suitable discourse context, explicitly delete some or all of the individual correspondences between aspects of Afghan political structure and aspects of the Vietnamese one, while leaving other individual Afghanistan/Vietnam correspondences intact.

Clearly the explicit countering of correspondences can also handle cases of corrective juxtaposition where one metaphorical view, e.g. of libraries as magical places, completely replaces another. All correspondences set up as a result of one utterance can be explicitly deleted when another utterance comes along. But more importantly for the current article, because of ATT-Meta's flexibility as explained above, it can smoothly encompass anything from complete replacement through partial replacement to no replacement at all when an additional metaphorical view is added in and doesn't conflict with ones already being entertained.

In the ATT-Meta approach, there is an indefinite amount of inference about source scenarios, and proactive elaboration of them in the ordinary course of metaphor understanding. A small example of this was implicit in the "John pushed the idea aside" example, where the source scenario is elaborated with the inference that the idea becomes relatively inaccessible. But much more elaborate inference is possible and may be needed (Barnden, 2006, 2015b, 2016). Thus, explicit elaborations of source scenarios as in Type B corrective examples fits naturally with ATT-Meta.

In addition, because of the exception/default handling, the point that elaborations can sometimes cause metaphorical connotations to be suppressed is serviced. For example, consider (16). Putting aside the ship's-cargo metaphor for now, we saw how the elaboration of the costumes as being made of quilts defeats the default that clothes are usually deliberately taken off, rather than accidentally falling off. This is straightforwardly handled by ATT-Meta's uncertain reasoning. Furthermore, the resulting non-deliberateness carries over to the target scenario because of view-neutral mappings concerning mental qualities and logical operators such as negation.

We can now consider the compounding with the cargo metaphor in (16). As explained more fully in Barnden (2016), in parallel compounding the ATT-Meta approach allows that the understander may try to treat the metaphors separately – in separately handled source scenarios (cf. the evidence in Kimmel (2010) that separate treatment often happens in ordinary understanding of mixed metaphor) – or in a unified way – by building a unified source scenario. So, in principle the cargo metaphor in (16) can be handled entirely separately from the costume one – i.e. two entirely separate source scenarios illuminating the target can be constructed – or, in principle, an attempt can be made to produce a unified source

scenario. The ATT-Meta theory does not yet have a clear policy on when these alternative options should be followed, though Barnden (2016) tentatively suggests that a unified one should be tried unless there is a clear reason against this, while Kimmel (2010) makes a proposal that is sensitive to clausal boundaries and broad divisions between types of target subject-matter. Whether or not the costume or cargo metaphors are handled separately or together, however, the cargo metaphor reinforces the non-deliberateness of the changes of the personality. I will comment below on the unrealism that arises under the unified approach, where the personality is viewed simultaneously as costume and cargo.

A further observation that should be made is that both the costume and the cargo metaphors, whether handled separately or conjointly, contribute a deeply negative value judgment to the personality changes. It's generally bad for one's clothes just to fall off, and it's bad for cargo to shift around. Value judgments are carried over by a view-neutral mapping adjunct in ATT-Meta. This is another illustration of the importance of view-neutral mapping in metaphor. To summarize, its usefulness, including in cases of the phenomena addressed in this article, can be seen in the following examples amongst others: (5) [moving sand with a teaspoon] – transfer of difficulty and time-consumingness; (6) [invisible tightrope] – transfer of difficulty and possible bad outcomes; (8) [voice like honey] – transfer of positive value judgment and emotion; (9) [hair like fouled bird's nest] – transfer of negative value judgment and emotion; (10) [panic/Hell] – transfer of negative emotion; (16) [costume, cargo, quilts]: transfer of (non-)deliberateness and negative value judgment.

The above discussion also reinforces the point made in section 5.3 that at least two types of replacement can usefully be distinguished in metaphor. A source scenario can be changed in some way, with consequent effects on the target, either because certain mappings now have a different effect or some mappings drop out of play or other ones come into play. The change can be a complete replacement of a scenario by another very different one, as in (11) [libraries as supermarkets / magical places], or an elaboration as in (16), where the default deliberateness of clothing removal is replaced by accidental falling-off. However, another type of replacement is where a source/target correspondence is replaced, with consequent effects on the target, even though nothing in an existing source scenario has been replaced, as in the Somalia/Afghanistan example above.

Finally, ATT-Meta can handle source scenarios that can be arbitrarily unrealistic. This is facilitated by the fact that source scenarios are developed inside *fictions* (*pretences*) that allow any sort of departure from reality. They also allow any degree of elaboration within the fiction, as any real-world knowledge relevant to the concepts used within the fiction is available for use. The approach is related to fiction-based approaches to metaphor that have been discussed in Philosophy

(see, e.g., Walton, 2004 [1993]). (Although blend spaces in Blending theory can also be thought of as fictions, ATT-Meta departs here from Blending theory in not having any notion of the fiction being built using information from specific, delineated spaces outside the blend, and does not have any notion of a "generic" space.) Picking up from examples in Section 5.2, the reasoning provisions in ATT-Meta ensure that, say, a premise that a particular tightrope is invisible can override generally-applicable inferences that a tightrope is a visible object, or a premise that some dinosaurs can think about their own extinction can override inferences that they can't think such things, based on real-world information about dinosaurs.

As also mentioned in Section 5.2, unrealism can arise from joining together disparate source subject-matters in compounding. For instance, suppose this approach is followed for (16). In the fiction, there is no bar to the personality being stipulated both to be a piece of clothing and to be an item or set of items of cargo. These stipulations override the inferences, which might arise in a real situation, that a piece of clothing that is being worn cannot also be an item of cargo; also incompatible inferences resulting from these stipulations (e.g. about rigidity or size) will simply be suppressed by ATT-Meta's general reasoning provisions, and this suppression will not matter if those inferences are not relevant in the particular discourse context to the meaning of the metaphorical passage.

7. Conclusion

This article has sought to bring together various phenomena that have typically been discussed separately, and most strongly to link the (much discussed) issue of compounding with the (much discussed) issue of elaboration with each other, and to link both of them to the (rather less discussed) issues of strength-modification and the (relatively little) discussed issues of metaphor replacement and of unfamiliar unrealistic source scenarios. All these phenomena shade into each other by their very nature and can be mixed together in discourse.

In addition, just as there are different types of compounding, there are qualitatively different types of replacement, etc., and the different varieties should be addressed further in more sophisticated analyses. As just one instance, this paper mentioned in particular two types of replacement, one of source-scenario aspects and one of particular source/target correspondences.

The article has sketched how the ATT-Meta approach to metaphor can not only cope with compounding and elaboration, as explained in detail elsewhere, but is suitable also to handling replacement and unrealistic source scenarios. For the latter two phenomena as well as the former, key helpful features of the approach

include: focusing strongly on uncertain reasoning and particularly the handling of defaults and exceptions; integrating mapping actions thoroughly into the overall flow of inference; having opportunistically activated mappings that are not packaged rigidly into constructs such as conceptual metaphors; treating source/target correspondences as hypotheses that can be supported and defeated like any other; factoring out much of source/target transfer in metaphor into view-neutral as opposed to view-specific mapping; not rigidly regimenting knowledge into domains; and taking seriously the idea of source scenarios as exercises in fiction.

This is not to say, of course, that ATT-Meta is the only framework that would be suitable, and various other frameworks such as Relevance Theory and Blending could potentially also be suitable. Part of the point of confronting a particular theory, ATT-Meta or any other, with the phenomena is that they are to some extent theory-relative, rather than entirely describable in a uniform way that will fit all theories of metaphor.

References

Aisenman, R. A. (1999). Structure-mapping and the simile-metaphor preference. *Metaphor and Symbol*, 14(1), 45–51. doi:10.1207/s15327868ms1401_5

Allbritton, D. W. (1995). When metaphors function as schemas: Some cognitive effects of conceptual metaphors. *Metaphor and Symbolic Activity*, 10 (1), 33–46. doi:10.1207/s15327868ms1001_4

Asher, N., & Lascarides, A. (2001). Metaphor in discourse. In P. Bouillon & F. Busa (Eds.), *The language of word meaning* (pp. 263–287). Cambridge: Cambridge University Press.

Barnden, J. A. (2001). Uncertainty and conflict handling in the ATT-Meta context-based system for metaphorical reasoning. In V. Akman, P. Bouquet, R. Thomason, & R. A. Young (Eds.), *Modeling and using context: Third international and interdisciplinary conference (CONTEXT 2001)* (pp. 15–29). Berlin: Springer.

Barnden, J. A. (2006). Consequences for language learning of an AI approach to metaphor. In J. Salazar, M. Amengual, & M. Juan (Eds.), *Usos sociales del lenguaje y aspectos psicolingüísticos: Perspectivas aplicadas* (pp. 15–57). Palma de Mallorca: Universitat de les Illes Baleares.

Barnden, J. A. (2008). Metaphor and artificial intelligence: Why they matter to each other. In R. W. Gibbs, Jr. (Ed.), *The Cambridge handbook of metaphor and thought* (pp. 311–338). Cambridge, U.K.: Cambridge University Press. doi:10.1017/CBO9780511816802.020

Barnden, J. A. (2010). Metaphor and metonymy: Making their connections more slippery. *Cognitive Linguistics*, 21(1), 1–34. doi:10.1515/cogl.2010.001

Barnden, J. A. (2012). Metaphor and simile: Fallacies concerning comparison, ellipsis and inter-paraphrase. *Metaphor and Symbol*, 27(4), 265–282. doi:10.1080/10926488.2012.716272

Barnden, J. A. (2015a). Metaphor, simile, and the exaggeration of likeness. *Metaphor and Symbol*, 30(1), 41–62. doi:10.1080/10926488.2015.980692

Barnden, J. A. (2015b). Open-ended elaborations in creative metaphor. In T. R. Besold, M. Schorlemmer, & A. Smaill (Eds.), *Computational creativity research: Towards creative machines* (pp. 217–242). Berlin: Springer.

Barnden, J. A. (2016). Mixed metaphor: Its depth, its breadth, and a pretence-based approach. In R. W. Gibbs, Jr. (Ed.), *Mixing metaphor* (pp. 73–112). Amsterdam: John Benjamins. doi: 10.1075/milcc.6.05bar

Barnden, J. A., & Lee, M. G. (2002). An artificial intelligence approach to metaphor understanding. In T. Komendzinski (Ed.), *Metaphor: A multidisciplinary approach. Special issue. Theoria et Historia Scientiarum*, 6(1), 399–412.

Carston, R. (1996). Metalinguistic negation and echoic use. *Journal of Pragmatics*, 25(3), 309–330. doi: 10.1016/0378-2166(94)00109-X

Carston, R., & Wearing, C. (2011). Metaphor, hyperbole and simile: A pragmatic approach. *Language and Cognition*, 3(2), 283–312. doi: 10.1515/langcog.2011.010

Chiappe, D. L., & Kennedy, J. M. (2000). Are metaphors elliptical similes? *Journal of Psycholinguistic Research*, 29(4), 371–398. doi: 10.1023/A:1005103211670

Fauconnier, G., & Turner, M. (2008). Rethinking metaphor. In R.W. Gibbs, Jr. (Ed.), *The Cambridge handbook of metaphor and thought* (pp. 53–66). Cambridge, U.K.: Cambridge University Press. doi: 10.1017/CBO9780511816802.005

Fogelin, R. J. (2011). *Figuratively speaking* (Revised ed.). New York/Oxford: Oxford University Press. doi: 10.1093/acprof:oso/9780199739998.001.0001

Gentner, D. (1983). Structure-mapping: A theoretical framework for analogy. *Cognitive Science*, 7(2), 95–119. doi: 10.1207/s15516709cog0702_3

Gentner, D., & Bowdle, B. (2008). Metaphor as structure-mapping. In R. W. Gibbs, Jr. (Ed.), *The Cambridge handbook of metaphor and thought* (pp. 109–128). Cambridge, U.K.: Cambridge University Press. doi: 10.1017/CBO9780511816802.008

Gibbs, R. W., Jr. (Ed.). (2016). *Mixing metaphor*. Amsterdam: John Benjamins. doi: 10.1075/milcc.6

Gibbs, R. W., Jr. & Santa Cruz, M. J. (2012). Temporal unfolding of conceptual metaphoric experience. *Metaphor and Symbol*, 27(4), 299–311. doi: 10.1080/10926488.2012.716299

Glucksberg, S. (2001). *Understanding figurative language: From metaphors to idioms*. New York: Oxford University Press. doi: 10.1093/acprof:oso/9780195111095.001.0001

Glucksberg, S. (2008). How metaphors create categories – quickly. In R. W. Gibbs, Jr. (Ed.), *The Cambridge handbook of metaphor and thought* (pp. 67–83). Cambridge, U.K.: Cambridge University Press. doi: 10.1017/CBO9780511816802.006

Glucksberg, S. (2011). Understanding metaphors: The paradox of unlike things compared. In K. Ahmad (Ed.), *Affective computing and sentiment analysis: Emotion, metaphor and terminology* (pp. 1–12). Berlin: Springer. doi: 10.1007/978-94-007-1757-2_1

Glucksberg, S., & Haught, C. (2006). Can Florida become *like* the next Florida?: When metaphoric comparisons fail. *Psychological Science*, 17(11), 935–938. doi: 10.1111/j.1467-9280.2006.01807.x

Grady, J. E. (1997). Theories are buildings revisited. *Cognitive Linguistics*, 8(4), 267–290. doi: 10.1515/cogl.1997.8.4.267

Grossman, Z. (2002). Afghanistan is Vietnam ... and Yugoslavia, Colombia, and Somalia, all rolled into one. In R. Burbach & B. Clark (Eds.), *September 11 and the U.S. war: Beyond the curtain of smoke* (pp. 61–64). San Francisco: City Lights Books.

Hobbs, J. R. (1992). Metaphor and abduction. In A. Ortony, J. Slack, & O. Stock (Eds.), *Communication from an artificial intelligence perspective: Theoretical and applied issues* (pp. 35–58). Berlin: Springer. doi:10.1007/978-3-642-58146-5_3

Horn, L. R. (1985). Metalinguistic negation and pragmatic ambiguity. *Language*, 61(1), 121–174. doi:10.2307/413423

Kimmel, M. (2010). Why we mix metaphors (and mix them well): Discourse coherence, conceptual metaphor, and beyond. *Journal of Pragmatics*, 42, 97–115. doi:10.1016/j.pragma.2009.05.017

Kittay, E. F. (1989). *Metaphor: Its cognitive force and linguistic structure*. Oxford, U.K.: Clarendon Press.

Lakoff, G. (1993). The contemporary theory of metaphor. In A. Ortony (Ed.), *Metaphor and thought* (2nd ed., pp. 202–251). New York/Cambridge, U.K.: Cambridge University Press. doi:10.1017/CBO9781139173865.013

Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. Chicago: University of Chicago Press.

Lee, M. G., & Barnden, J. A. (2001). Reasoning about mixed metaphors with an implemented AI system. *Metaphor and Symbol*, 16(1/2), 29–42. doi:10.1080/10926488.2001.9678884

Littlemore, J., & Low, G. D. (2006). *Figurative thinking and foreign language learning*. Basingstoke, U.K.: Palgrave, Macmillan. doi:10.1057/9780230627567

Mann, W., & Thompson, S. (1988). Rhetorical structure theory: Toward a functional theory of text organization. *Text*, 8, 243–281.

Musolff, A. (2007). Popular science concepts and their use in creative metaphors in media discourse. *metaphorik.de*, 13, 67–85.

Oates, J.C. (2002). *I'll take you there*. London/New York: Fourth Estate.

Sperber, D., & Wilson, D. (1995). *Relevance: Communication and cognition* (2nd ed.). Oxford: Blackwell.

Sperber, D., & Wilson, D. (2008). A deflationary account of metaphor. In R. W. Gibbs, Jr. (Ed.), *The Cambridge handbook of metaphor and thought* (pp. 84–105). Cambridge, U.K.: Cambridge University Press. doi:10.1017/CBO9780511816802.007

Turner, M., & Fauconnier, G. (1995). Conceptual integration and formal expression. *Metaphor and Symbolic Activity*, 10(3), 183–204. doi:10.1207/s15327868ms1003_3

Walton, K. (2004)[1993]. Metaphor and prop oriented make-believe. In E. John & D. M. Lopes (Eds.), *Philosophy of literature – Contemporary and classic readings: An anthology* (pp. 239–247). Oxford: Blackwell. Reprinted with abridgement from *European Journal of Philosophy, 1*, 39–57.

Wee, L. (2003). A new look at novelty in metaphor: Implications for metaphor comprehension and production. Talk given at *5th International conference on researching and applying metaphor (RAAM V)*, University of Paris 13, France, 2–5 September 2003.

White, R. M. (1996). *The structure of metaphor: The way the language of metaphor works*. Oxford, U.K.: Blackwell.

Wilson, D., & Carston, R. (2006). Metaphor, relevance and the 'emergent property' issue. *Mind and Language*, 21(3), 404–433. doi:10.1111/j.1468-0017.2006.00284.x

Author's address

Prof. John A. Barnden
School of Computer Science
University of Birmingham
Birmingham B15 2TT
UK

j.a.barnden@cs.bham.ac.uk

About the author

John Barnden has been Professor of Artificial Intelligence (now Emeritus) at the School of Computer Science, University of Birmingham, UK since 1997. He works both on theoretical issues concerning metaphor, metonymy and other figures and on the development of computational systems for metaphor processing. He is particularly interested in the relationships between different figures. He takes an interdisciplinary approach spanning artificial intelligence, cognitive linguistics, psychology and philosophy.