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Mixed metaphor

Its depth, its breadth, and a pretence-based approach

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The article sketches how a particular approach to metaphor, the ATT-Meta approach, which has been partially realized in an implemented AI program, copes with various types of mixing. Mixing here is broadly construed as including felicitous compounding, not only infelicitous mixes such as when there are unintended comical effects. The structures of mixing considered included chaining (called here serial mixing), parallel mixing (e.g., when different metaphorical views are brought to bear on the target of the metaphor), and combinations of serial and parallel mixing. ATT-Meta has specific technical advantages as regards mixing. These include (i) a focus on individual mappings as opposed to packages of mappings such as conceptual metaphors, (ii) the use of generic mappings called view-neutral mapping adjuncts, which are not specific to particular metaphorical views and cope with certain core types of information that are commonly manipulated in metaphor, and (iii) the construal of mappings as going from pretence spaces (fictional spaces) to surrounding reasoning spaces as opposed to going from one domain to another.

5.1   Introduction

Lee & Barnden (2001) distinguished different types of mixing while seeking to account for them within a common overall framework, namely the *ATT-Meta* approach to metaphor. This approach has been realized in a working computer program also called ATT-Meta (Agerri et al. 2007; Barnden, 2001a,b, 2006a, 2008, 2015). In this chapter I give a more extensive, updated account of how ATT-Meta deals with mixed metaphor, and discuss distinctive features of ATT-Meta that help with the processing of mixed metaphor. These features include: the use of pretence spaces; nesting of them in different ways to account for different patterns of metaphor mixing; a flexible, opportunistic method for application of mappings; and the

use of very generic mappings that provide source-to-target transfer of information of certain general sorts, *irrespective* of what the specific target and source are and irrespective of the specific metaphorical connection between them is being used in a discourse segment.

This chapter takes a liberal view of what mixing includes. "Mixing" is usually taken to mean that the same target A is viewed both as B and as C more or less at the same time in a piece of discourse, with B and C being distinctly different source subject matters. However, I regard that phenomenon as *parallel* mixing. Mixing in this chapter also includes metaphor "chaining" – when A is viewed as B where B is in turn viewed as C. I refer to chaining as *serial mixing*. This terminology deviates from the practice of authors such as White (1996) who explicitly exclude chaining from the realm of mixing. But it is more fruitful to think of all the different ways of combining metaphors within a discourse as mixing, especially because (as we will see) there are demarcation disputes between the types, and fuzziness about whether an utterance exhibits mixing at all. Of course, one could insist on using a word like "combining" or "compounding" for the general phenomenon, and reserve "mixing" for the parallel case, or more especially for parallel cases with comical or negative stylistic effects, but it is undesirable to use terms that are quasi-synonyms in ordinary discourse for importantly different technical purposes.

Some naturally occurring examples of mixed metaphor of sorts that are of interest in this chapter are:

(1)   "[T]he thought of her step-mother's arrival … hung over her mind like a dark angry cloud."[1]

(2)   "We do not have a chocolate army [that] fades away at the first sign of trouble."[2]

(3)   "[The weather is] settling into a drier frame of mind[.]"[3]

(4)   "But [Ireland] is also an island, divided, angry, full of old demons and old hate."[4]

(5)   "This liberation of his spirit from the load of his weakness …"[5]

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1.   Jolly, S. *Marigold Becomes a Brownie,* p. 44. London, U.K.: Blackie & Son – The Anytime Series (no date).

2.   From *Question Time* programme on TV channel BBC1, UK, 16 July 2009.

3.   From a weather report on BBC Radio 4, U.K., 7 am, 30 July 2003.

4.   From Iris Murdoch, *The Book and the Brotherhood,* p. 82. London: Penguin Books, 1988.

5.   From G.K. Chesterton, *The Man Who Was Thursday: A Nightmare,* p. 66. London: Penguin Books, 1986.

(6)   "Sharon pulled herself out of her jeans, the words 'How could he? How could he?' jumping about her wearied brain. Senseless, leaving her empty, cold, helpless. Another voice, angry and vindictive, shouted in her ear, 'Serves you right, you silly fool: play with fire and watch your life go up in flames. It was all so predictable[.]'"[6]

I will be commenting on these and other examples below, explaining why they involve mixing and what sorts of mixing they involve. As a brief indication, in (1) we have serial mixing of a view of a thought as a cloud and a view of the cloud as a person. Also, that thought-as-cloud leg is mixed in parallel with mind-as-terrain. In (5) we have a parallel mixing of spirit-as-person with a view of weakness as a weighty physical object.

The plan of the article is as follows. Section 5.2 describes the ATT-Meta approach in general, without focussing on mixing, but concentrating on aspects that are especially relevant to mixing. Section 5.3 discusses the ATT-Meta approach to mixed metaphor, and points out how the use of a form of pretence, the particular nature of ATT-Meta's mappings, and other aspects of the approach help with the processing of mixed metaphor. Section 5.4 discusses the possibility that in general there may be no objective matter of fact about whether a particular discourse segment involves mixing of metaphor, or, if it does, about what particular sort and structure of mixing it involves. Section 5.5 briefly concludes.

A matter we will have to leave aside is the important one of whether metaphor can be rigorously distinguished from other figurative phenomena such as metonymy. If it can't, then important types of mix such as metaphor/metonymy mixes (Goossens, 1990; Ruiz de Mendoza Ibáñez & Velasco, 2002) become indivisible in principle from the case of metaphor/metaphor mixes. Elsewhere (Barnden 2010) I have argued that the notions of metaphor and metonymy are just loose heuristic ones, with scientific reality lying at a lower level consisting of certain fundamental dimensions, and allowing compromises and overlaps between metaphor and metonymy. That work extends the idea of some other authors that there is a spectrum of phenomena on which typical metaphor and typical metonymy are merely particular points (Dirven, 2002; Radden, 2002). However, it would be too complex to involve metonymy in this chapter.

I will regard simile as one type of surface form that metaphorical expression can take. However, this is mainly for brevity, and readers who think of simile as a distinctly different phenomenon from metaphor can often take me to be using the word "metaphor" metonymically to mean metaphor or simile, at the cost of taking the chapter to cover mixtures of metaphor and simile!

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6.   From magazine *My Story*, May 1995, p. 17. Gibraltar: Editions Press Ltd.

5.2   The ATT-Meta approach

Here I outline the ATT-Meta approach to metaphor, without specifically attending to mixed cases, although a form of mixing will in fact arise naturally in examples. ATT-Meta is first and foremost a theoretical processing account of aspects of metaphor understanding. It could inform psychological modelling of human metaphor understanding or intelligent computer programs for metaphor understanding, and has certain philosophical implications (not spelled out in this article) for the nature of metaphor and metaphor understanding. Thus, in essence, the approach was developed in order to investigate the fundamental nature of metaphor.

But for the purposes of ensuring that the theory is workable and conceptually coherent, the approach has been partially implemented in a computer program, called the ATT-Meta system or program (or just ATT-Meta, when this is clear enough). The working system does not currently actually accept natural language sentences or have a metaphor-identification aspect. Rather, it is a system for handling just the reasoning and source/target mapping actions that the ATT-Meta approach holds to be needed for handling a certain broad type of metaphor.[7] Also, the system is not intended to be definitive as to how the approach should be implemented in computer software – many other implementations of the broad principles of the ATT-Meta approach could be envisaged.

5.2.1   ATT-Meta's orientation and a quick example

The ATT-Meta approach is primarily geared towards a point somewhere between lexicalized metaphor, requiring just look-up of the metaphorical meaning, and metaphor that puts subject matters together in an entirely unfamiliar way. The approach mainly addresses metaphorical language that does rest on known mappings between subject matters, but where there are utterance elements that are not directly mapped by those mappings. Such language goes open-endedly beyond known mappings. The following example serves to convey a general idea of the type of metaphor to which ATT-Meta is geared, and to illustrate some of ATT-Meta's principles.

(7)   "One part of Mary was insisting that Mike was adorable."[8]

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7.   However, there is an ongoing project Gargett & Barnden, 2015 to connect the ATT-Meta system to an implementation of Embodied Construction Grammar (Feldman, 2010), which has some metaphor-handling abilities. This will provide a natural-lanuage front-end for ATT-Meta and provide part of a capability for metaphor identification.

8.   This is a simplified version of a real-discourse example given in full later.

I take this to rest on two very general metaphorical views that are often used about the mind, First, there is the view of a person or a person's mind as containing people (that I will call "sub-persons") with their own mental states. The sub-persons are often portrayed as parts of the person as in (7). For brevity I call this view MIND AS HAVING PARTS THAT ARE PERSONS. Secondly, the sub-persons may be portrayed as communicating in natural language, again as in (7). In such a case, the utterance also rests on a metaphorical view of IDEAS AS INTERNAL UTTERANCES, so we immediately have a case of mixed metaphor. I will concentrate on MIND AS HAVING PARTS THAT ARE PERSONS for now.[9]

In the ATT-Meta approach, a metaphorical view only involves a small number of very general, high level mappings. In the case of MIND AS HAVING PARTS THAT ARE PERSONS, one mapping is as follows: a person having some reason or motive to believe/desire/intend/fear/like/… something is metaphorically viewed as (metaphorically corresponds to, is metaphorical mapped to) *at least one sub-person* having a reason or motive to believe/desire/intend/fear/like/… it. So, if we know from an utterance such as (7) that some sub-person believes something, then *a fortiori* that sub-person presumably has a reason/motive to believe it, and hence, via the mapping, so does the overall, real person. (From now on I will talk just about motives to believe, for brevity, rather than motives or reasons.)

The metaphorical view allows for different sub-persons to have different beliefs (etc.) that conflict with each other, in which case the real person has motives to believe various conflicting things, without believing any one of them. Thus, the view caters for utterances like "One part of me believes that angels exist, but another part believes they don't." The real person has both a motive to believe that angels exist and a motive to believe that they don't.

The only other mapping involved in MIND AS HAVING PARTS THAT ARE PERSONS is between the overall person believing/desiring/… something and *every* metaphorical sub-person believing/desiring/… it. This is important, as follows.

In many utterances based on MIND AS HAVING PARTS THAT ARE PERSONS, only one sub-person is explicitly mentioned, as for instance in "One part of Peter thinks angels exist." Here we just get the conclusion that the real person has a motive to think that angels exist. There is no conclusion that he/she has a motive to think that angels do *not* exist. Rather, there is a weaker effect, namely the conclusion

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9.   There are many examples of the use of the two views in the ATT-Meta databank (Barnden, n.d.). There and in previous papers I have called the first one MIND PARTS AS PERSONS. That label is briefer but more inaccurate than MIND AS HAVING PARTS THAT ARE PERSONS. It is inaccurate because it looks as though it is assuming that the mind really has identifiable parts. But in fact the analysis into parts is merely an aspect of the metaphorical view itself.

that *it is not the case that Peter believes that angels exist*. This arises because, pragmatically, we can presume that there are other, non-mentioned, sub-persons that *lack* the belief that angels exist (because otherwise why would the speaker have mentioned just one sub-person as believing that angels exist?). But this does not mean that these additional sub-persons positively believe that angels do not exist. Rather, from the fact that not all sub-persons believe that angels exist, we can infer, by means of the second mapping above, that it is not the case that Peter believes that angels exist. If he/she did, then all the sub-persons would.

In the example just discussed, there is no reason to suppose that additional sub-persons have beliefs contrary to the sub-person mentioned in the sentence. However, in (7), although again only one part is explicitly mentioned, there is now some extra information that does allow us to infer that some other sub-person has a belief contrary to that of the mentioned sub-person. That is, we can infer that *there is another sub-person that believes that Mick is NOT adorable*. This arises because of the real-world nature of insisting. Typically, someone insists something because there is a conversation with a person who denies it. Thus, the presence of a sub-person who claims that Mick is *not* adorable can be inferred (as a default, or working assumption). Given a general default that when someone claims something they believe it, this sub-person presumably believes that Mick is not adorable. Thus, we do get the strong effect that the person has motives both to believe that Mick is adorable and to believe that he isn't.

A key lesson from the above explanation is the subtle meaning effects that can arise just from deploying a couple of very general mappings and from doing some inferencing about a sketchily presented source scenario. That inferencing is based usually on commonsense knowledge about the real-world subject matter on which the source scenario is based. In our examples the source subject matter is that of ordinary groups of people and conversations, together with people's mental states and utterance actions such as insisting. In particular, there is no need at all to propose that the mentioned or implied sub-persons correspond to identifiable parts or aspects of the real person, or to propose that there is some internal, real mental action that can be clearly held to correspond to the action of insisting in the sentence. Rather, the mentions of parts and of insisting in (7) are *merely* tools towards constructing a rich source scenario, which in turn conveys in an economical, accessible and vivid manner the presence of a conflicted state of mind.

This also illustrates one principle of ATT-Meta. The approach, while mapping-based, tries to *avoid* as far as possible the on-line creation, during the understanding process, of new mappings to cater for source-scenario elements for which there is no mapping. Inference within the source scenario is done in order to find things that *existing* mappings *can* directly work upon. In our example these things are the motives-to-believe that individual sub-persons have. These directly mappable

things may not even be things mentioned in the sentence. Indeed, it could be that very little in the sentence itself ends up being mapped to the target scenario. (The target scenario is the real person's mental states, in our example.) Neither the mentioned "part" nor the insisting is mapped to anything.

ATT-Meta is focussed on sentences like (7) that, arguably, contain metaphorical elements that are not lexicalized for the hearer (the hearer has no stored target-scenario meaning for them) and that, moreover, go beyond the metaphorical mappings the hearer knows about. I call such sentences *map-transcending*. This is of course a relative notion, being dependent on what is lexicalized for the hearer and what mappings the hearer possesses. Map-transcending metaphor could be said to be a form of "extended" metaphor, though this is a vaguer term.[10] The following are some other examples of map-transcending metaphor – more precisely: metaphor that is plausibly map-transcending for a typical hearer.

(8)   "Even today, within the deepest recesses of our mind, lies a primordial fear that will not allow us to enter the sea without thinking about the possibility of being attacked by a shark."[11]

This rests on prevalent metaphorical views of MIND AS PHYSICAL SPACE and IDEAS and EMOTIONS AS PHYSICAL OBJECTS. It is unlikely that ordinary hearers have a detailed enough non-metaphorical conception of the mind that supplies anything to which the mentioned "recesses" could map, let alone the notion of them being "deep" or what it means for a fear to "lie" somewhere. Thus, the recesses and their depth, and the lying of the fear, are map-transcending aspects of the utterance. They are there just to convey that we have a fear that comes to consciousness in appropriate moments (entering the sea) even though it is normally not something we are consciously experiencing.

(9)   "The managers were getting cricks in their necks from talking up [to some people in power over them] and down [to the managers' subordinates]."[12]

Arguably the neck-cricks are a map-transcending element getting at the idea that, in the source scenario, the managers constantly have to turn their heads to talk to people physically above and physically below, and thereby acquire cricks. It is common for abstract control relationships, especially in organizational settings,

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10.   Lexicalized metaphor in the sense intended corresponds roughly to conventional metaphor. However, my concern is with whether a word or phrase is lexicalized for *some particular understander*, whereas conventionality is about a language, not specific understanders.

11.   http://sharkresearchworldwide.org/interactions.htm, accessed 31 July 2013.

12.   Goatly (1997: p. 162). The example is from the *Daily Telegraph* newspaper.

to be metaphorically viewed in terms of relative vertical position of the people concerned. However, this view does not address the question of someone having a crick in their neck. Also, no conventional metaphorical sense for "crick" appears in a consulted dictionary (Chambers). Only one example was found in the British National Corpus (BNC)[13] of metaphorical neck cricks, or other neck pains, being used metaphorically to describe mental/emotional states in situations with no actual or potential turning of real heads. This example was "The draught from Microsoft's increasingly popular Windows is giving rival software firms a crick in the neck," which exploits the fact that a draught of air can cause a neck-crick. Now, annoying things and circumstances are often conventionally described as being a "pain in the neck'" or just "a pain." It may therefore be possible to analyse (9) as resting on a metaphorical view underlying these idioms, for example a view of ANNOYING ITEM AS A PAIN. However, (9) shows some elaboration in that the specific notion of a crick is introduced, and linked to the specific context-specific circumstance of the constant turning of the managers' heads in two opposite, physical directions. These cricks cause pain, emotional stress, difficulty in continuing such head-turning, and unwillingness to continue it. Such feelings and so forth are in the source scenario, but in the presence of suitable, rather generic mappings (see below), the target-scenario effect is that the managers experience emotional stress as a result of their conversations, difficulty in continuing them and unwillingness to continue them.

Consider now

(10)   "I don't think strings are attached. If there are any they're made of nylon."[14]

There is a common metaphorical view of requirements as attached strings. However, the being-made-of-nylon is presumably a map-transcending element of the second sentence. One piece of evidence of this is that no instance of "nylon" being used metaphorically for any purpose was found in the BNC, whether or not in conjunction with "strings." In the context of the sentences, the nylon element helps to convey that the requirements, if present at all, are not readily noticeable, because of the translucency of nylon.[15] These examples and/or similar ones have

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13.   Accessed via the tools at http://corpus.byu.edu/bnc/

14.   From *Newsnight* programme on TV channel BBC2, U.K., 3 July 2007. Plausible punctuation added. The speaker was an African politician being interviewed about a new investment by China in mineral mining.

15.   Some informants say that, out of context, the element conveys to them that the requirements are strong, because of the strength of nylon in contrast to ordinary string. This is a valid alternative interpretation in general, but does not fit the actual context in which (10) lay.

been analysed under the ATT-Meta approach (see for example Barnden, 2001b, 2006b, 2009, 2015). The analyses bear out the principles that map-transcending elements of the sort above usually do not need to have mappings invented for them, and that subtle meanings can be derived from small sets of highly general mappings combined with commonsense inference within the scope of, and serving to flesh out, the source scenarios implied by the sentences.

As so far explained, ATT-Meta's approach resonates with the notion of "metaphorical entailments" in much work on conceptual metaphor theory, based initially on the work of Lakoff & Johnson (1980). However, the work on ATT-Meta has spelled out how entailments (essentially source-scenario inferences) work in much more detail, while also getting away from the excessively strong notion of entailment – the ATT-Meta approach emphasizes the uncertain nature of the inferences involved. At a suitably high level the approach bears some strong similarities to those of Hobbs and Narayanan (Hobbs 1992; Narayanan, 1999), but the approach has distinctive features not yet mentioned, including: the use of "pretence" spaces, "ancillary assumptions," and "view-neutral mapping adjuncts." These are all very important for the application of ATT-Meta to mixed metaphor, and will be explained in the following subsections.

5.2.2 Fictionalist/pretence-based approach

A distinctive feature of ATT-Meta, compared to other approaches in cognitive linguistics, psychology and AI, is to handle (map-transcending) metaphor through a *pretence* mechanism. I use a very broad notion of pretence here. It is akin and even perhaps identical to that involved in thinking counterfactually.[16] In thinking through what would have happened had Obama lost the 2012 US presidential election, one mentally pretends that Obama did lose the election and then explores that pretend scenario. This broad notion of pretence in no way involves deceiving oneself or others of anything, or of physically acting a role.

Under this weak notion of pretence, the metaphor understander pretends that what the metaphorical sentence literally says is true, and draws consequences from it using knowledge about the source subject matter, those consequences still being regarded as part of the pretence. What was referred to above as a source scenario is more precisely a pretended scenario. If a consequence derived within the pretence (e.g., that there is an additional sub-person who denies that Mick is adorable, or that a fear in a recess is relatively inaccessible physically) can be handled by a known metaphorical correspondence, then the correspondence can create a

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16. Indeed, the ATT-Meta approach has also been shown to be able to achieve counterfactual reasoning (Lee, 2010).

corresponding claim about the target situation being addressed by the utterance. For example, for (7) one consequence in the pretence is that that there is a sub-person who has a motive to believe that Mick is not adorable; and the existence of this sub-person is used by a correspondence mentioned above to derive that Mary herself has this motive.

Mappings in ATT-Meta serve to bridge between aspects of the pretence and reality. More precisely, since pretences can be nested within spaces other than reality, including within other pretences (see Section 5.3.1), mappings serve to bridge between a pretence space and the *surrounding reasoning space* – the space immediately surrounding the pretence. In the remainder of Section 5.2 this surrounding space will be a reasoning space concerning reality.

Another way of putting it is that the understander uses the literal meaning of the utterance to construct a fictional scenario which he/she/it then elaborates, selectively extracting information about the target through the application of mappings. A pretended scenario is similar to a world as depicted by a fictional narrative. The ATT-Meta approach is therefore akin to fictionalist approaches to metaphor in philosophy (e.g., Walton, 2004), and to the use of imaginary worlds for poetry understanding (Levin, 1988). Recently, Carston and Wearing (2011) have sketched in a preliminary way an extension to the Relevance Theory approach to metaphor by adding what I call a pretence space. This is in order to extend Relevance Theory to some of the types of phenomena ATT-Meta has been applied to.

Any pretence-based or fictionalist view subscribes to the notion that literal meanings – or more precisely, source-domain meanings – of words or expressions used metaphorically are active in the process of understanding and indeed are central to it, at least under some conditions. The psychological evidence on this matter is mixed but contains some supportive indications (for results and discussion see, for instance: Bowdle & Gentner, 2005; Gibbs & Matlock, 2008; Rubio Fernández, 2007; Smolka, Rabanus & Rösler, 2007). A complication is that many studies look at relative processing speed of literal and metaphorical sentences, but the idea that literal meaning is used in computing metaphorical meaning does not have clear implications for processing speed. For one thing it does not imply that the validity of literal interpretation must first be discarded before metaphorical interpretation is tried. Moreover, the time needed to resolve the difference between the iteral and metaphorical meanings during understanding may be swamped by the time needed to connect either sort of meaning inferentially to the unfolding context.

5.2.3   Metaphorical views and mappings in ATT-Meta

Metaphorical views in ATT-Meta are roughly similar to conceptual metaphors, but with a conceptual level of generality comparable to Grady's primary

metaphors (Grady, 1997). The notion of mapping in ATT-Meta consists in the fact that for a given metaphorical view, such as IDEAS AS PHYSICAL OBJECTS, there is a small set of *correspondence rules* that can be used in order to relate aspects of some source subject matter (being used in a pretence) to aspects of some target subject matter (in the reasoning space surrounding the pretence). For instance, the view of MIND AS PHYSICAL SPACE only currently involves two correspondence rules. The most important one is a correspondence rule linking, on the target side, an agent's ability to mentally use an idea (in thinking, for example) to, on the source side, the idea being physically located somewhere within the agent's mind metaphorically viewed as a physical space. In the ATT-Meta system, this correspondence is actually encapsulated in a reasoning rule of the following rough form:

(11)   IF (in a pretence) a person P's mind is a physical region
        AND (in the surrounding reasoning space) J is an idea,
        THEN
        (in the surrounding space) P's being able mentally to use J
        CORRESPONDS TO
        (in the pretence) J being physically located within that region.

This rule covers both unconscious and conscious mental use of idea J. We also need a more specific rule, confined to conscious use:

(12)   IF (in a metaphorical pretence) a person P's mind is a physical region
        AND (in the surrounding reasoning space) J is an idea
        THEN
        (in the surrounding space) P's being able *consciously* to use J
        CORRESPONDS TO
        (in the pretence) J being physically located within the *main part* of that
        region

(The main part of a mind region will be discussed below.) The IF part of such rules acts as an appropriateness condition or *guard*. During processing of a metaphorical utterance, it can become apparent that a person P's mind is being viewed as a physical region. This can happen, for instance, if the "recesses" of the person's mind are mentioned in the utterance, as in (8). Then, the rule above can fire for P and any idea J that may be salient. What the rule does is create the correspondence specified in the THEN part, for the particular person P and idea J at hand. Notice therefore that the created correspondence is about the particular person and idea, not all people and ideas. Also, it is dynamically constructed as just described rather than being statically present. These are important points behind the open-endedness and flexibility of the ATT-Meta approach, and will be shown below to be helpful for mixed metaphor.

The ATT-Meta approach itself does not ordain what metaphorical-view-specific correspondence rules such as the one above exist in minds or should be used in AI systems. Rather, the approach is partly a theory of how such correspondence rules can be used, in general. Naturally, in order to illustrate the application of the ATT-Meta approach, or run the ATT-Meta system on specific examples, particular correspondence rules need to be assumed.

There are general, informal expectations about what correspondence rules are usually like, apart from the assumption that they include guards as above. An important expectation is that they are at a very high level of description. They are in this way similar in spirit to the mappings of Grady (1997), as opposed to the original type of mappings used in conceptual metaphor theory (e.g., as in Lakoff & Johnson 1980). Those older mappings might belong to views such as THEORIES ARE BUILDINGS and therefore relate aspects of theories in particular to aspects of buildings in particular. However, Grady's mappings are illustrated by PERSISTING IS REMAINING ERECT and of ORGANIZATION IS PHYSICAL STRUCTURE. Grady claims that these are the key mappings needed to make sense of examples that talk of theories as if they were buildings, and that that (usually) one does not need to consider mappings that link theory-specific elements to building-specific elements such as walls, windows and plumbing. The ATT-Meta approach concurs with the general insight here, as the mappings discussed so far illustrate.

5.2.4   The pretence-based nature of mappings

In ATT-Meta, correspondences (mappings) are by definition between the contents of a pretence and contents outside the pretence. They are *not* by definition between different subject matters or domains. In Barnden (2010) I argue for scepticism, shared with other authors such as Haser (2005: pp. 32ff), about the scientific utility of the notion of "domain" in describing what metaphor fundamentally is or how it works. This is despite the fact that *heuristically and intuitively* it can indeed often be useful to talk of metaphor as mapping between domains.

Thus, in ATT-Meta, mappings are not tied to specific domains of life, except in so far as may be intuitively implied (to the theoretician) by the use of particular concepts within the correspondence-rule guards and the correspondences themselves. It is heuristically and presentationally useful to regard ATT-Meta's mappings as relating "subject matters" to each other, and indeed the subject matters that are linked are *often* qualitatively distinct in some intuitive way, such as in the case of a mapping between mental usage of ideas and physical operation on those ideas considered as physical objects. However, ATT-Meta makes no assumptions whatever as to how close or distinct, or how disjoint or overlapping, the two subject matters are, and there is no use of subject matter distinctions anywhere in the

approach. This point is embodied in the fact that ATT-Meta mappings technically go between pretences and their surrounds, not between subject matters.

This point is well illustrated by the two mappings mentioned above for MIND AS HAVING PARTS THAT ARE PERSONS, one of which is more precisely glossed as follows. X is a variable standing for some proposition. Key differences between the two rules are italicized.

(13)   IF (in the reasoning space surrounding a pretence) P is a person
       AND (within the pretence) P has one or more sub-persons (parts that are persons)
       THEN
       (in the surrounding space) P's *having some motive to* believe X
       CORRESPONDS TO
       (in the pretence) *at least one* sub-person *having a motive to* believe X.

(14)   IF (in the reasoning space surrounding a pretence) P is a person
       AND (within the pretence) P has one or more sub-persons (parts that are persons)
       THEN
       (in the surrounding space) P's *believing* that X
       CORRESPONDS TO
       (in the pretence) *all the* sub-persons *believing* that X.

Both sides of the correspondences in the THEN parts of these rules are about people having motives to believe things. There is no useful domain distinction.

5.2.5   Detail in a sub-persons example

Here I give some additional detail of a simplification of (7):

(15)   "One part of Mary was saying that Mike was adorable."

Now, taking sentence (15) literally, the mentioned part of Mary says that Mike is adorable. This fact about Mary is a premise used within the pretence. Given the general default that when people claim things they believe them, the premise is used to infer

A.   the [mentioned] part of Mary (a sub-person) believes that Mike is adorable.

It follows *a fortiori* that

B.   that sub-person has a motive to believe that Mike is adorable.

Since Mary does have a sub-person, correspondence rule (13) applies, creating a correspondence between *Mary*'s having a motive to believe that Mike is adorable

and *the sub-person* having such a motive. This correspondence can now be used to create from (B) the proposition about reality that

C.   Mary has some motive for believing that Mike is adorable.

Thus, overall, a few simple inference steps lead from a within-pretence premise derived directly from (15), taken literally, to a within-pretence proposition (B) that is mapped to become a within-reality proposition (C). See Figure 5.1 (where the example is put into the present tense for simplicity).
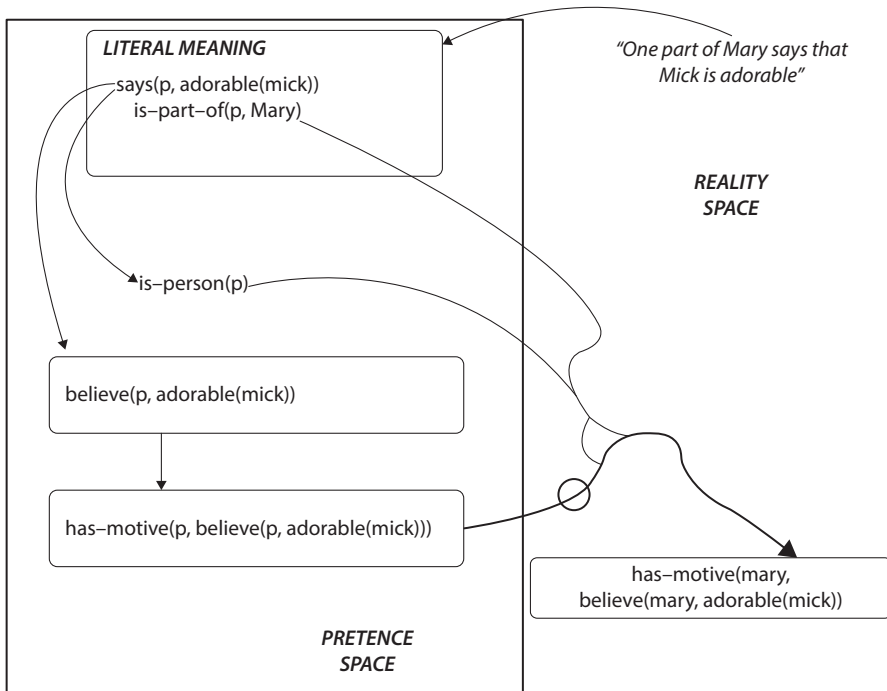
Figure 5.1. Showing the processing for (a present tense version of) example (15). The large box shows the pretence space. The circled arrow crossing the box boundary from inside shows a mapping action, specifically one that arises from correspondence rule (13) in the text, associated with the MIND AS HAVING PARTS THAT ARE PERSONS view. The thin lines joining the circled arrow show the dependence of the correspondence on the guard conditions in (13). Other arrows show ordinary inference steps

Also, much as noted earlier, we can take it as a pragmatic inference from the utterance of (15) that *not all* sub-persons of Mary say that Mick is adorable. It can then be inferred that there is evidence that these other parts lack the belief that Mick is

adorable. With the help of correspondence rule (14) it can be inferred that there is evidence that Mary lacks the belief that Mick is adorable, since some sub-persons may lack this belief.

As a further illustration of the open-endedness of metaphor and how ATT-Meta can deal with it, consider the following variant of (7):

(16) "One voice inside Mary was insisting that Mike was adorable."

This preserves the essential quality for present purposes of part of the following real example:

(16a) "Suddenly I was having second thoughts. About us, I mean. Did I really want to get married and spend the rest of my life with Mick? *Of course you do* one small voice insisted."[17]

(16) and (16a) do not mention any person-like part of Mary. But the existence of the voice can be used to infer such a part by default, within the pretence. Moreover, as with (7) the insistence can be used to infer by default that at least one other sub-person has said that Mick is *not* adorable. That other sub-person can be inferred (by default) to *believe* that Mick is not adorable. From then on the understanding process is much as with (15), except that we now get the extra conclusion that Mary has a motive to believe that Mick is *not* adorable. We therefore stiffen a conclusion that was derived from (15) – that *there is evidence that* she lacks the belief that Mick is adorable – to the *default* conclusion from (16) that she does indeed lack that belief.

5.2.6   Ancillary assumptions

A novel feature of ATT-Meta is the inclusion of *ancillary assumptions*. These are important aspects of some metaphorical views, alongside correspondence rules such as (13, 14). They serve to fill out a source scenario by various standard, default expectations involved in the view. Ancillary assumptions provide an ability somewhat akin to the scenarios of Musolff (2004).

For example, a set of ancillary assumptions that I use for MIND AS PHYSICAL SPACE amounts to saying that *if* a person's mind is metaphorically a physical region then, in the source scenario, that region has a (highly localized) main part, the person has a *conscious self* that is a person, and this person is physically located in the main part of the region (as opposed to subsidiary parts such as recesses or the periphery of the region). Moreover, under the metaphorical view the conscious self corresponds to the person (there is a metaphorical mapping between the conscious self and the person).

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17.   From magazine *My Story*, May 1995, p. 6/7. Gibraltar: Editions Press Ltd.

The assumption of a conscious self is useful in many applications of MIND AS PHYSICAL SPACE, including a mixed metaphor example below. There is no assumption here that people objectively have person-like conscious selves (homunculi). They are only being posited as an aspect of MIND AS PHYSICAL SPACE.

Consider this example:

(17)   "The idea was in the far reaches of Anne's mind"[18]

The location of the idea in the *far reaches* implies, within the source scenario, that the idea is not immediately and easily operable upon physically by the conscious-self-person, which is in the *main part* of Anne's mind-region. This lack of physical operability by the conscious-self-person can be mapped, with the help of the main correspondence associated with IDEAS AS PHYSICAL OBJECTS, to Anne's lack of ability, in reality, to use the idea consciously.

As another case, in using ATT-Meta on DISEASE AS POSSESSED OBJECT examples, I include an ancillary assumption that, *if* a disease is being viewed as a possessed object, then that object is "copiable." Copiability is a feature of some real-world objects, for instance documents. Giving someone such an object does not entail ceasing to possess it. This allows the approach to treat language such as "Mary gave John a cold" as implying that John developed a cold without Mary's ceasing to have a cold. Crucially, just positing that a disease can be viewed as a physical object does not *of itself* logically imply copiability of that object. Copiability is an extra assumption forming part of long-term knowledge about the way the view of DISEASE AS POSSESSED OBJECT is used.

And an ancillary assumption is merely an assumption – a default. It is possible that a speaker could creatively talk about a disease as a non-copiable physical object, in which case the assumption would be defeated. The ATT-Meta approach allows this freedom. Thus, in understanding "John offloaded his cold onto Mary," the specific nature of offloading can be used to defeat the default that John keeps the cold when giving it.

5.2.7   View-neutral mapping adjuncts

There was no treatment above of the effect of the "small" qualifier of the voice in Example (16a). Suppose this qualification is added to (16). The effect of this on the meaning of (16) is to convey the refinement that the motive to believe that Mick is adorable *is relatively unimportant in Mary's current mental state*.

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18.   Cf. "In the far reaches of her mind, Anne knew Kyle was having an affair, …" from article "Facing up to the Dreadful Dangers of Denial" in *Cosmopolitan*, US ed., *216* (3) March 1994.

How could this meaning refinement come about? Presumably because, in the pretence scenario, the sub-person's utterance is (by default) relatively unimportant, through being relatively quiet. So, it can be inferred *a fortiori* that the sub-person's motive to believe that Mick is adorable is relatively unimportant in the overall pretended scenario. The sub-person's motivational state corresponds under the MIND AS HAVING PARTS THAT ARE PERSONS view to Mary's having a motive to believe that Mick is adorable. Thus, as long as this correspondence can somehow be used as a reason to transfer the lack of importance as well, we get the desired effect about lack of importance of Mary's motive to believe that Mick is adorable.

This is where *view-neutral mapping adjuncts* (VNMAs) come in. There are general qualities about source scenarios that are very often transferred in metaphor to the target scenarios, no matter what the specific metaphorical view is. (See related points made by Carbonell, 1982, and Narayanan, 1999.) Amongst such qualities are evaluative properties and relationships such as goodness, value and importance. I therefore include the following rule in the ATT-Meta approach:

(18)   IF entity X in a pretence
       CORRESPONDS TO
       entity Y in the surrounding reasoning space
       THEN
       the importance of X in the context of the pretence scenario
       CORRESPONDS TO
       the importance of Y in the context of the surrounding space.

As qualitative degrees to which situations hold also correspond across a pretence boundary in a situation-sensitive way – more on this below – a small degree of importance in the pretence situation maps to small degree of importance in the situation in the surrounding reasoning space.

The use of other VNMAs is illustrated by the following example. It is derived from (1) and is a simplification of a real mixed-metaphor example to be treated in Section 5.3.1.

(19)   "The thought is a dark cloud hanging over her."

The pronoun "her" refers to a young girl, Marigold, and the thought in question is the thought of her stepmother's arrival at the house. I analyse (19) as resting on the metaphorical view of IDEAS AS PHYSICAL OBJECTS. The dark cloud and the hanging-over constitute map-transcending aspects of the sentence. Now, I assume the existence of some correspondence rules for IDEAS AS PHYSICAL OBJECTS. For instance, one rule relates conscious usage of an idea in reality to the person's conscious self physically operating upon the idea. (Conscious selves arise through ancillary assumptions associated with IDEAS AS PHYSICAL OBJECTS, as explained

in Section 5.2.6.) But it turns out that these correspondences are not relevant to (19). The understanding of (19) is instead achieved through VNMAs. First, note the following connotations of (19):

(20)   Marigold is depressed by (or doesn't like) the thought of her stepmother's arrival.
That mood is likely to persist for some time.

In a real outdoors situation, a dark cloud is depressing, or unlikable, or affectively negative in some other way – I will stick to the depression option for simplicity of illustration. It is depressing partly because of darkness itself but partly also because of the indication of possible rain to come. Also, because it is "hanging over" Marigold, it is static; and as clouds do not usually makes sudden movements or changes of speed, it will probably stay hanging for some time. It will also presumably stay dark – again, a given cloud is unlikely to change between light and dark with any speed. A further subtlety is that it is a matter of inference that, in the pretend scenario, Marigold is outdoors. (Of course, in reality she may not be.) If she weren't, the cloud would be hanging over her house (for example), not her. (19) is indeed a good example of the richness and subtlety of metaphorical meaning, and how so much can be gleaned from simple, familiar life situations.

But how are the connotations in (20) produced, more exactly? Given that the pretence scenario has been enriched by conclusions about the cloud's darkness and persistence of hanging, and its depressing effect on Mary, we can then also infer within the pretence that Mary's depressed mood is itself persistent. This uses a principle that if a cause persists then by default the effect persists as well. All we need now is to be able to map the depressing effect and its persistence from pretence into reality in order to get the two connotations listed above.

This mapping is done in ATT-Meta by two further VNMAs. One maps qualitative temporal attributes of within-pretence situations to corresponding situations outside the pretence. The other maps within-pretence affective states to affective states outside the pretence, in certain circumstances. Expressed informally, these VNMAs are:

(21)   IF some situation P in a pretence
CORRESPONDS TO
some situation S in the surrounding reasoning space
THEN
(in the pretence) P's having a specific qualitative temporal attribute
CORRESPONDS TO
(in the surrounding space) S's having the same attribute.

A qualitative temporal attribute is an attribute such as immediacy, persistence, intermittency, and gradualness.

(22)   IF something P in a pretence
       CORRESPONDS TO
       something S in the surrounding reasoning space
       AND
       some cognitive agent within the pretence
       CORRESPONDS TO
       some cognitive agent in the surrounding space
       THEN
       (in the pretence) the pretence agent's bearing a particular mental/affective attitude towards P
       CORRESPONDS TO
       (in the surrounding space) the corresponding surrounding-space agent's bearing the same attitude towards S.

These VNMAs will produce the connotations in (20). It is first found, through VNMA (22), that Marigold's being depressed *by the cloud* (in the pretence) corresponds to her being depressed *by the thought* (in reality). As she is indeed depressed by the cloud in the pretence, she is depressed by the thought in reality.

Then, because of the correspondence between Marigold's within-pretence depressed mood and her inferred within-reality depressed mood, VNMA (21) creates a correspondence between the *persistence* of the within-pretence mood and the *persistence* of the within-reality mood.

This sequence illustrates the fact that one VNMA can act upon the results of another, to create a sequence of more and more elaborate correspondences. Schematically, with within-pretence aspects on the left and within-reality aspects on the right:

Marigold	↔ Marigold
cloud	↔ thought
depressed-about(Marigold, cloud)	↔ depressed-about(Marigold, thought)
persistent(depressed-about(Mar., cloud))	↔ persistent(depressed-about(Mar., thought))

The first line here reflects a general feature of ATT-Meta's handling or pretence, namely that entities can lie in more than one space, although they may change their nature between spaces. Entities keep their nature on going into a pretence, unless there is something about the pretence that change their nature. So Marigold, who is in both the reality space and the pretence space, is just a person in both. But the thought changes into a cloud in the pretence. The multiple presence of an entity in different spaces can be construed as a matter of identity mappings across space boundaries.

Other VNMAs include ones that handle the following: *complementation* (e.g., converting a proposition about loving X, or believing that Y, to not loving X,

or failing to believe that Y; or converting in the opposite direction);[19] further *temporal* information such as time order of events and (qualitative) rates of change; *causation/enablement/attempting* relationships; *ability* to do something; *tendency* to do something; *normal functioning* (i.e., something doing what it is designed or evolved to do); *degree* to which a situation holds; and *uncertainty* with which a situation holds. Notice that VNMAs do not rely on any specific metaphorical view, and are generic in that sense. On the other hand, they are merely default rules, so their implications can be defeated in specific circumstances by other evidence.

Work on the ATT-Meta approach indicates that metaphorical utterances often get much, and some cases almost all, of their effect via VNMAs rather than directly from view-specific mappings. The latter often merely provide a scaffold to allow VNMAs to handle the most important information. The treatment of a wide variety of examples in (Barnden 2001b, 2006b) provides evidence for this claim. To take one case, consider again Example (9). The emotional distress from the neck crick, and indirectly caused by the managers' conversations, transfers to become emotional distress in reality, caused by the conversations, because of VNMA (22) handling emotional states and because of a causation VNMA. (Note, however, that the causal chain in reality space is not assumed to contain items that correspond to the neck-crick itself or the physical pain it causes.) Equally, the within-pretence unwillingness of the managers to continue with the conversations, and the difficulty in doing so, transfer to reality, because of VNMAs handling temporal matters (the potential continuation itself), emotional/mental states, ease, and degrees. In all this the only view-specific mapping used is the very basic one of relative vertical position corresponding to control relationships.

5.2.8   Goal-directed reasoning

The ATT-Meta approach gives a major role to goal-directed reasoning. Although the descriptions of reasoning above are couched as moving forward from premises towards conclusions, the process is actually typically assumed to proceed in a goal-directed way.[20] That is, there is some goal or issue that the system is trying to address, and reasoning steps are attempted towards that end. For example, in the case of (19), the actual context raises the question of Marigold's mood and her

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19.   This VNMA has already been implicitly used several times in examples.

20.   The overall ATT-Meta approach allows non-goal-directed as well as goal-directed reasoning to be used. However, the implemented ATT-Meta system can at present only do goal-directed reasoning.

dislike of her stepmother. So the goal of investigating Marigold's affective states concerning her stepmother is posted. Given the presence of VNMA (22) handling affective states, this can be converted into the goal of investigating her affective states in the pretence. By a process of backwards chaining through inference rules, it is discovered that it is known that a dark cloud is hanging over her, and the necessary inferences can now be rolled forward to conclude that, in the pretence, she is depressed about the cloud. This then rolls forward via VNMA (22) to become the conclusion that she depressed by the thought of her stepmother's arrival.

Goal-directed reasoning is an extremely powerful tool for combatting the notorious indeterminacy of metaphorical meaning (see, e.g., Stern 2000). Suitably deployed it can guide metaphor understanding towards uncovering meaning that is relevant to the context. See Barnden (2009) for more on this.

5.2.9   ATT-Meta and blending

ATT-Meta has some similarity to, and some differences from, the blending-theory approach to metaphor (Turner & Fauconnier, 1995; Fauconnier & Turner, 2008). Pretence spaces are very like blend spaces, especially because of something not yet mentioned: namely that a pretence can opportunistically use information from reality, much as a fictional story such as one about Sherlock Holmes can use real information about London. So a pretence can be a blend between aspects of the surrounding reasoning space and pretended world aspects, and consequences drawn in the pretence can depend on both types of information. Moreover, reasoning within the pretence is like the elaboration of a blend space.

However, in the blending-theory approach to metaphor, there are specific input spaces, and it is between these that metaphorical mappings work, whereas in ATT-Meta metaphorical mappings work directly between pretence contents and contents outside the pretence. Blending theory does not have a correlate of VNMAs and has not developed an extensive concern with details of gradedness (the matters of degree above) or uncertainty. On the other hand, blending theory has been applied to a much wider variety of linguistic issues than ATT-Meta has.

5.3   ATT-Meta and mixed metaphor

Lee and Barnden (2001) provide an early account of how the ATT-Meta approach deals with mixed metaphor. The present account reflects major developments since then.

5.3.1   The marigold example: Mixed form

Consider now real example (1), repeated here:

(23)   "[T]he thought of her step-mother's arrival … hung over her mind like a dark angry cloud."

For present purposes I take this as meaning the same as

(24)   "[T]he thought of her step-mother's arrival was a dark angry cloud hanging over her mind."

That is, I do not address any special effect of the simile form in (24), centred on the "like." A more careful analysis might have it that the thought was metaphorically some unknown object hanging over her mind, where that object was merely *like* a dark angry cloud. The example is already complex enough without bringing in this possibility.

The main point I wish to address is that now the cloud from (19) is itself being metaphorically viewed as "angry" in (23, 24). We have here an example of serially mixed metaphor: the thought as a cloud, the cloud in turn as an angry person. The first link in this mixing rests on the metaphorical view of IDEAS AS PHYSICAL OBJECTS. The second rests on personification, which broadly speaking is the view of NON-PERSON AS PERSON. The non-person can be any sort of entity – concrete or abstract, and if concrete then living object or not.

Metaphorically casting inanimate objects as "angry" is common, as in saying that a part of one's body is or looks angry to convey that it is inflamed. This appeals to one meaning of "angry" listed in, for instance, Chambers' dictionary. Another meaning, when the word is applied to the sky, etc., is: "of threatening … aspect." However, "threatening" itself has a standard (metaphorical) meaning in Chambers as "promising rain …" when applied to skies, clouds, etc. It is therefore reasonable to think that a hearer of (24) has a lexicalized metaphorical meaning of "angry" when applied to skies, clouds, etc. that is something like "indicative of rain etc. coming shortly."

If so, (24) could be treated by a slight enrichment of the way we treated (19) above. We already said above that the "dark" nature of the cloud is depressing and suggests rain. That suggestion is strengthened by the "angry" – i.e., the rain is more likely and more imminent. This enrichment is within the scope of VNMAs: the imminence is a matter of time-course, just as persistence is, as discussed above; and uncertainty is also transferred out of a pretence by a VNMA. The more certain something is in the pretence, then (other things being equal) the more certain a corresponding situation, if any, is outside the pretence.

Although "angry" is therefore plausibly a case of lexicalized metaphor, it is instructive also to see how ATT-Meta could treat it if it *were* active, non-lexicalized metaphor. The structure of the treatment is broadly the same as would occur with other examples of serial mixing where both links are more clearly active. And in any case an individual hearer may not in fact have an appropriate lexicalized metaphorical sense for the word, e.g., a child or a foreign learner of English. Even in the case of a hearer who does know the above lexicalized metaphorical sense, the metaphor may be reawakened because of other uses of "angry" or related terms in the discourse context. There is also the evidence (see, e.g., Boroditsky, 2000) that metaphor that is normally thought entirely conventional actually is unconsciously active for us, so that it is possible that "angry cloud" etc. does make us unconsciously entertain the idea of the cloud as a person.

Turning to another complication in (24), there is an added type of mixing that may be less evident. Unlike (19), (24) says that the cloud is hanging over Marigold's *mind*, not over Marigold herself. So now Marigold's mind is being cast either (i) as a piece of physical terrain or (ii) as a physical object located on such a terrain. Since mind-as-terrain is a commonly occurring special case of the commonly used metaphorical view of MIND AS PHYSICAL SPACE, I will assume here that mind-as-terrain is what is used, as a more economical alternative than (ii). So, if we lump Marigold's mind and thoughts together as one subject matter, we have one aspect of this subject matter being viewed as a PHYSICAL SPACE and another aspect being viewed as a PHYSICAL OBJECT.

Thus the overall structure of the mixing in (24) is the view of Marigold's mind as a physical terrain mixed in parallel with thought-as-cloud, where the latter is serially mixed with cloud-as-person.

I now proceed to outline how the mixing is handled using the pretence space mechanism of ATT-Meta.

5.3.2   Deployment of pretence spaces, VNMAs and inference

The treatment of (24) rests on nesting of pretences. There is an outer pretence in which the thought of the stepmother's arrival is a cloud; and within that pretence there is an inner pretence in which that cloud is an angry person. See Figure 5.2. As far as the inner pretence is concerned, reality consists of the outer pretence. Effects flow between the inner pretence and outer pretence in just the same way as effects flow between the outer pretence and reality.

As regards the parallel aspect of the mix, the outer pretence gets enriched by the inference that Marigold's mind is a piece of physical terrain. Thus in the outer pretence the thought is a cloud hanging over that terrain.
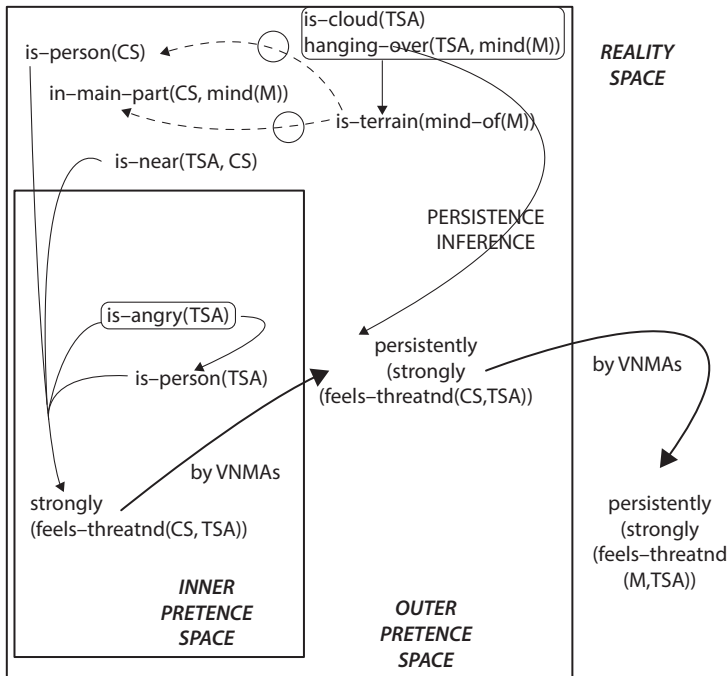
Figure 5.2. Showing the pretence structure and some major mapping and inferential links for Example (24). M stands for Marigold. TSA stands for the thought of the stepmother's arrival. CS stands for Marigold's conscious self. The solid arrows with large heads show the action of VNMAs, working in this diagram on the "strongly" and "persistently" qualifiers, and on the feeling of threat in going from the inner to the outer pretence and from the outer pretence to reality. (Notice there are no view-specific mapping actions, and hence no circled thick arrows like the one in Figure 5.1.) The circled dashed arrows show the effect of ancillary assumptions associated with MIND AS PHYSICAL SPACE. The other arrows show ordinary inference steps. For simplicity of illustration, not all propositions and links are shown. In particular, the inferencing that derives is-near(TSA, CS) is not shown

Marigold's mind and the thought are in all three spaces: reality, the outer pretence and the inner pretence. As before, the thought changes into a cloud in the outer pretence, and changes again into a person in the inner pretence, where this personhood is inferred from the angriness. Marigold's mind changes into a physical terrain in the outer pretence, but stays as a physical terrain in the inner pretence.

Recall from Section 5.2.6 that, by an ancillary assumption for MIND AS PHYSICAL SPACE, within the pretence a conscious self is inferred (by default) to be present within the main part of the mind-space. Furthermore, this agent corresponds metaphorically to the real agent (Marigold) outside the pretence. Thus,

by virtue of VNMA (22), which is concerned with mental and emotional states, such states of the two agents (Marigold and her conscious self) also correspond.

Notice the slight difference here from Example (19), where Marigold herself, rather than her conscious self, is an agent in the pretence. But the VNMA works similarly both for (19) and our current example. For (19), it makes Marigold's mental/emotional states in reality correspond to her mental/emotional states in the pretence.

The fact that, in the outer pretence, the conscious-self person is in the main part of the mind-space can be used also in the inner pretence. This is because a pretence can use information from surrounding spaces unless it is suppressed by defeating information. In the inner pretence, the cloud is an angry person that I'll refer to as the cloud-person. Hence, Marigold's conscious self is caused to experience a strong sense of threat from the cloud-person, in the inner pretence.

We need here the fact, in the inner pretence, that the cloud-person is near to Marigold's conscious self. This is also imported from the outer pretence. The nearness is inferred in the outer pretence in the following way. Assuming that Marigold's thought about her stepmother is consciously entertained by Marigold, we obtain with the help of rule (12) the result that the cloud is in the main part of the mind terrain. Given that this main part is highly localized and that the conscious self is located within it, it can be assumed that the cloud-person is near to the conscious-self person.

Now, VNMA (22), together with the identity mappings for the thought and the conscious-self-person, lead to the creation of a correspondence between

> (in the inner pretence) the conscious-self person feeling strongly threatened by the cloud-*person*

and

> (in the outer pretence) the conscious-self person feeling strongly threatened by the *cloud*.

Thus, because in the outer pretence Marigold's conscious self person feels threatened by the cloud, and the cloud corresponds to the thought (of the stepmother's arrival) in reality, we get via the VNMA (22) again the result that in reality Marigold feels threatened by that thought.

Further, much as for (19), the VNMA that deals with the temporal characteristics of states can lead to a further important result. In the outer pretence, the cloud is *hanging*, implying that this state of affairs is likely to last for considerable time (in the context of the time scale of everyday weather events). Thus, by a commonsense inference concerning the fact that the feelings are about the cloud, the

unpleasant feelings in the outer pretence are also likely to last for a considerable period. The VNMA mentioned now transfers this longevity or persistence to become persistence of Marigold's unpleasant feelings in the real world (on the time scale of everyday dynamics of feelings).

One thing needs to be noted about intensities with which properties apply, in the ATT-Meta approach – specifically the intensity of the fear in our current example. In the outer pretence the negative feelings towards the cloud are reasoned about *in terms of the properties of real clouds* and *not* in terms of the properties of angry people, because in the outer pretence the cloud is *not* an angry person. Thus, in the outer pretence it can be inferred that the cloud is causing negative reactions in Marigold in the sense that it looks as though it is going to lead to rain (etc.). So, in particular, the degree of intensity of unpleasant feeling in the outer pretence should be inferred to be commensurate with what rain could lead to, not what an angry person would lead to. So, it is not that the exact degree of unpleasantness is carried over (by the degree VNMA) from inner pretence to outer pretence. Rather, is a tendency towards high intensity *in the context of interpersonal situations* that carries over to a tendency towards high intensity *in the context of everyday weather situations*.

5.3.3   More on parallel mixing

In the treatment of (24), the parallel mix of IDEAS AS PHYSICAL OBJECTS and MIND AS PHYSICAL SPACE naturally arose in one pretence. This is because in the outer pretence the use of MIND AS PHYSICAL SPACE arose by default inference from the use of IDEAS AS PHYSICAL OBJECTS. The view of IDEAS AS PHYSICAL OBJECTS was inherent in the fact that the thought was viewed as a cloud. It was the fact that this cloud was hanging over Marigold's mind that led to the inference that her mind was a physical space.

Mixing the two views in one pretence works well here because of the natural compatibility between the two views. It is nevertheless useful to regard MIND AS PHYSICAL SPACE and IDEAS AS PHYSICAL OBJECTS as separate views. Even though very many examples of MIND AS PHYSICAL SPACE do also involve IDEAS AS PHYSICAL OBJECTS, as evidenced by the examples in the ATT-Meta databank (Barnden, n.d.), there are also many cases when the views occur separately. Ideas are often alternatively viewed as objects *external* to the person holding or entertaining the ideas, as in "They kicked the idea round the room." Conversely the mind can be viewed as a physical space without taking ideas to be physical objects in the normal sense of things that can move, be handled, etc. For instance, under MIND AS PHYSICAL SPACE, thoughts can be portrayed as physically located linguistic expressions (spoken or written), as in:

(25)   "She hoped he wasn't going to quiz her, and searched her mind for whatever Cliffs Notes might be jotted there – just in case."[21]

Felicitous parallel mixing also occurs in any case of MIND AS HAVING PARTS THAT ARE PERSONS where a mind-part makes an utterance. We then have parallel mixing with IDEAS AS INTERNAL UTTERANCES. The following are some further real-discourse examples of compatible parallel mixing. The first two are repeats of (4) and (5) respectively.

(26)   "But [Ireland] is also an island, divided, angry, full of old demons and old hate."

[Parallel mix of: Ireland as a physical container that can be full; hate as a physical object that could be put into such a container; and of problems etc. as demons in the container. There may also be parallel mixing with Ireland as an angry person who is individually "divided" in a mental sense, but another, possibly more plausible analysis is that there is a metonymy to the people of Ireland, who are literally angry and divided from each other.]

(27)   "This liberation of his spirit from the load of his weakness …"

[Parallel mix of spirit as physical person and an abstract personal quality (weakness) as a heavy physical object.]

(28)   "[The Dean's] gaze went slowly up to the ceiling [where there were depictions of the twelve signs of the zodiac], as if seeking comfort in his own private astrological heaven. Comfort came to him in some measure as his eye moved from Cancer to the taut form of Sagittarius. … At this moment the Dean's eye, voyaging still among his rafters, rested on Aquarius, …"[22]

[Parallel mix of the Dean's eye as voyaging person and the room's ceiling space as outer space or heaven.]

But the views in a parallel mix may not be very compatible. In response to this, ATT-Meta can when necessary handle parallel mixing by having separate pretences that sit side-by-side within the same surrounding reasoning space. Provisional contributions to the surrounding space are then drawn by mappings from the two pretences, and these contributions can combine in whatever way is possible and discourse-relevant in the surrounding space. The question of whether

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21.   From Patti Davis, *Bondage,* p. 142. New York: Pocket Books (Simon & Schuster), 1994. Cliffs Notes are a popular series of educational booklets. "Cliffs Notes" in (25) refers, metonymically, to the sort of written notes in the booklets, not to the booklets as such.

22.   From Michael Innes, *Death at The President's Lodging,* p. 39. London: Penguin Books, 1988.

more than one pretence is needed in a case of parallel mixing was mooted in Lee and Barnden (2001) and is still in part an open problem in general. However, it is possible now to be more specific than in the earlier work, as follows.

The multi-pretence approach is most natural when the pretence contents are very different qualitatively, or when one metaphor has already been understood and another metaphor is introduced rather separately afterwards. A good real-discourse example of the latter case is a text about US foreign policy[23] in which 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 text itself is too long to include here, and is a serious piece of analysis, not a comical pot-pourri.) It is arguably most economical to set up a new pretence to handle each new metaphor, and let the new inferences suggested in the surrounding space be combined as appropriate with the inferences from the previous metaphors. This "combining" does not preclude defeating the previously proposed ones. Trying instead to insert the source material and the associated mappings into an updated version of a single, old pretence could be difficult and computationally expensive.

On the other hand, I conjecture that in cases of parallel mixing where the various metaphorical views crop up close by in discourse (e.g., in the same fairly short sentence), people tend first to try to use one pretence, for good or ill. Comical effects of infelicitous parallel mixed metaphor suggest that one pretence is tried, even if this turns out not actually to be the best approach.

It is actually a good strategy to try a one-pretence analysis early on in understanding, for several reasons. First and most obviously, there is an overhead in deciding how many pretences should be used and into which pretences various premises should be put. Indeed, secondly, it may be quite unclear until considerable reasoning has been done that there is any mixing. Recall again the opportunistic way in which IDEAS AS PHYSICAL OBJECTS and MIND AS PHYSICAL SPACE arise from each other in examples above. Not much prior reasoning was needed to bring in the mapping in these particular cases, but the amount needed is in general open-ended.

Thirdly, a roughly Gricean or Relevance Theoretic account of language (Sperber & Wilson, 1995) would predict that normally people are cooperative in their mixing of metaphor so that in the case of mixing where the various views are active, the mixing can normally be coherently achieved without having to worry

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23.   http://zioneocon.blogspot.co.uk/2004/06/bret-stephens-in-wsj-opinion-journal.html (accessed 21 March 2012).

about using more than one pretence. Indeed, the hallmark of comical, unintended effects is precisely that the speaker does not seem to have noticed a clash, and this may be because the metaphorical senses involved are lexicalized for the speaker (or all but one of the senses are), so the speaker does not notice the conflict at the literal level.

5.3.4   Combining different types of mixing

We have already seen, with (24), that parallel and serial mixing acts can themselves be combined. In (24) the combination amounted to having an outer pretence in which two views (IDEAS AS PHYSICAL OBJECTS and MIND AS PHYSICAL SPACE) were mixed in parallel, and also an inner pretence to provide a serial mix of one of those views (IDEAS AS PHYSICAL OBJECTS) with personification of the cloud. But this is just one shape that combination of mixing types can take. Any configuration of nesting of pretences is in principle allowed in ATT-Meta. So, as an abstract illustration, there could be three outer pretences, two of which contain an inner pretence. Or any inner pretence could contain two or more pretences in parallel with each other within it, and any of these can contain further pretences, and so on.

It is not yet clear how commonly such elaborate structures are needed in practice. However, (6), repeated here as (29), is an example of mixed metaphor that appears to require a complex pretence structure. It is taken from a romantic-story magazine that is presumably meant to be easily understandable by the average person.

(29)   "Sharon pulled herself out of her jeans, the words 'How could he? How could he?' jumping about her wearied brain. Senseless, leaving her empty, cold, helpless. Another voice, angry and vindictive, shouted in her ear, 'Serves you right, you silly fool: play with fire and watch your life go up in flames. It was all so predictable[.]'"[24]

I analyse this as instantiating the view of IDEAS AS INTERNAL UTTERANCES. This view is more basically instantiated in sentences like (25) and the following:

(30)   "Some people go to bed at night thinking: 'That was a good day.' I am one of those who worries and asks: 'How did I screw up today?'"[25]

Sometimes in such examples there may be an implication that the person in question had a thought episode that *felt to that person* like uttering/hearing inner speech, or that felt like reading some writing. But this is not a necessary

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24. From *My Story*, May 1995, p. 17. Gibraltar: Editions Press Ltd.

25. From interview with actor Tom Hanks, *Saga Magazine,* January 2006, pp. 80–81.

implication: a thought that is not clothed in felt inner speech or writing can nevertheless be reported as if it were so. Notice that even if the person has the sensation of an inner utterance, it is still metaphorical to talk of the person's state as an utterance. There is no real utterance, only (at most) an inner representation of one. If in fact the person is not being claimed to be having an inner-utterance sensation, then there is an additional layer of metaphoricity. In fact, this is itself a case of serial mixed metaphor: a thought episode is metaphorically portrayed as the person having the sensation of experiencing something that is itself portrayed metaphorically as an utterance.

Irrespective of this issue, in (29) the voice is metaphorically viewed as something that can jump around inside Sharon's brain, so that the voice is some sort of jumping physical object – an animate creature, by default. In particular, her brain is being viewed as a container of such objects. But a further thought of Sharon's is metaphorically viewed as an *external* utterance, uttered by a voice shouting in her ear. So already we have a parallel mix of IDEAS AS EXTERNAL UTTERANCES, IDEAS AS INTERNAL UTTERANCES, and BRAIN AS CONTAINER OF IDEAS, with the IDEAS AS INTERNAL UTTERANCES component serially mixed with a view of a voice as an animate creature. And IDEAS AS INNER UTTERANCES is itself being inherently a matter of serial mixing, as above, if the understander does not take Sharon to be actually having the sensation of inner utterances.

On top of all this Sharon is metaphorically cold and empty, and either metaphorically or hyperbolically senseless, though the metaphors here may be lexicalized and therefore tending not to add to the complexity of pretence structure.

It is also almost embarrassing to have to mention that (29) involves yet another metaphor, within the second voice's utterance: "play with fire and watch your life go up in flames." This is not a case of mixing in the sense so far used: rather it is *embedding* of metaphor within a reported thought. What is of special interest here, though, is that metaphor can not only be embedded in real reported speech, as in "Sharon said to Jamie, "My life will go up in flames"", and in thought reports such as "Sharon thought her life would go up in flames", but it can also be embedded within a thought report that is itself metaphorically couched as a speech report by means of IDEAS AS INTERNAL UTTERANCES, as in (29).

5.3.5   Advantages that ATT-Meta brings to mixed metaphor

While ATT-Meta is not a complete account of non-mixed metaphor, let alone mixed metaphor, it brings positive things to the table that are of great utility as regards mixing. First, we have the already-noted freedom that ATT-Meta allows as regards pretence structure (e.g., how pretences are nested), supporting complex combinations of serial and parallel processing. This encompasses also a type

of mixing that is not mentioned above and that Goatly (2002) calls *multivalency*. This is where two or more different targets are both metaphorically addressed by means of the same source subject matter at more or less the same time in discourse. This is a converse to the type of parallelism discussed above, where one target is addressed by two or more different source subject matters. I call the latter parallelism *source-wise parallelism*, and Goatly's multivalency *target-wise parallelism*. Target-wise parallelism can be realized in the ATT-Meta approach – the two target subject matters simply occur together in the space surrounding the pretence(s) – but as with source-wise parallelism there is the issue of how many pretence spaces to use.

Note, however, that in the ATT-Meta approach both target-wise and source-wise parallelism are a matter of viewpoint, and are not objective clear-cut matters. This is particularly so because of ATT-Meta not subscribing to clear divisions between subject matters. Whether a particular stretch of discourse is about one target subject matter or about several can be a matter of viewpoint, as can be (though in practice to a lesser degree) the question of whether one source subject matter is being used or more than one.

Secondly, there is an important issue about the status of metaphorical views such as MIND AS PHYSICAL SPACE, etc. Although specific views are mentioned in the exposition above, they actually have no separate reality under the ATT-Meta approach. The theory does not propose that they have their own individual existence in the human mind, nor does it ordain that they do so in an implemented computer system. In particular, views are not entities in the ATT-Meta system. Rather, what is proposed as having mental or computational reality are the view-specific correspondence rules such as (11–14) and view-neutral rules such as (18) etc. The former type of rules can intuitively and roughly be regarded as belonging to some particular metaphorical view, but this belonging is not explicitly recorded. At best, the fact that two different correspondence rules belong to the same view is implicit in the fact that they involve similar guard conditions (the IF parts of correspondence rules). For example, a correspondence rule's guard could contain the condition that some idea in the reasoning space surrounding the pretence is a physical object within the pretence. This is tantamount to checking that that idea is being subjected to the view of IDEAS AS PHYSICAL OBJECTS. Two rules with such a check can to that extent be regarded as sharing a metaphorical view. But the guards could also have other, non-shared, elements, causing the rules to be used under somewhat different circumstances.

Implicit in these points is the fact that, by virtue of their guards, correspondence rules opportunistically decide from themselves whether they are relevant or not (to put it metaphorically!). This gives great operational flexibility. No top-down decision is needed that some metaphorical view, as such, should hold. It

might happen within a pretence that something is inferred to be a physical object, and this conclusion might be picked up by a correspondence rule's guard. But the mechanism performing the physical-object inference was just making an ordinary inference about a scenario, not making a decision about some view or about the applicability of some particular correspondence rule.

Also, insofar as the different views in a parallel mix might each involve more than one correspondence rule, there is no question of the hearer trying to bundle together these separate packages of rules as wholes, somehow creating a new coherent combined package of rules. That would be a matter of selecting correspondence rules as a result of first deciding what mix is involved. Rather, in ATT-Meta it is the other way around as well as more implicit and more fragmentary. It is correspondence rules that are individually selected by the needs of inference, and what views are thereby mixed together (in some theoretical construal of the processing) is an implicit side-effect of what rules are chosen. Moreover, it may well be that not all correspondence rules associated with a given view are used.

Thirdly, what correspondence rules do is create *specific* correspondences, by which I mean correspondences that apply to specific entities, not all entities of a class. For example, rule (11), when it fires, creates a correspondence between physical manipulation of a *specific* idea (such as the idea of Anne's husband being unfaithful) and a specific person's mental usage of that idea. Nothing is said about other ideas or people. These could in principle be subject to different metaphorical views, or none. This specificity and diversity can be important in practice – witness (29), where some ideas are metaphorically viewed as internal utterances and some as external utterances, and some ideas are viewed as jumping creatures while others are not.

The specificity is also key in analysing the nature of the following example:

(31)   "My husband stands beside and behind me."[26]

This casts human relationships, such as support between people and people/world relationships, in terms of physical space. It could be analysed as a case of parallel mixing. One sort of personal relationship is regarded as physically-behind, and another is regarded as physically-beside. "Behind" and "beside" both convey a support relationship, but the types of support are subtly different. "Beside" has more a quality of transparently working together on some task, whereas "behind" has more a quality of giving background help such as moral, financial or electoral support. So, we have parallel mixing at the level of quite specific mappings, where

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26.   Variant of an encountered example, but source not recorded.

these mappings might have been (naively) thought to be just different aspects of one metaphorical view of personal relationships as physical relationships. Now, because in (31) the mappings both happen to be applied to the very same pair of entities (the woman and her husband) we get a clash if we use a single pretence space (the husband is somehow both physically beside and behind the woman), making the mixing somewhat infelicitous and comical. But there is no general clash between the mappings as such. There would be no sense of clash in saying "My husband is beside me and my mother is behind me." We still have parallel mixing, but it is now felicitous.

Fourthly, it is not even the case that a correspondence rule has to be intuitively regarded as part of just one metaphorical view. The conditions in a guard could intuitively reflect more than one view. A guard might for instance check that one idea is being viewed as an animal (i.e., it is an animal in the pretence) and a check that some other idea is being viewed as a cage, to cater for special effects of cases where one idea is restrained by another idea. So both a view of an idea as an animate object and a view of an[other] idea as an inanimate object are mixed together. This feature of ATT-Meta is useful for handling familiar mixes of particular metaphorical views. In particular, it can allow for the mix to involve additional mappings not inherited from either view. Guards in ancillary assumptions can have similar benefits.

Fifthly, a reason for VNMAs being generally useful for mixing is as follows. The more that the weight of metaphor understanding is on VNMAs and on the type of information they deal with (emotions, abilities, causation, time, etc.) than on mappings associated with particular metaphorical views, the easier it is (i) to bypass any apparent clashes of subject matter between different view-specific mappings, in parallel cases, and (ii) to derive coherent and useful effects from a mixing situation, in both parallel and serial cases. For a simple example of this, consider the parallel mixing of IDEAS AS INTERNAL UTTERANCES and IDEAS AS EXTERNAL UTTERANCES in (29). One voice seems to be inside her brain, another outside. But the voices' utterances are both very negative, leading via a VNMA to the conclusion that Sharon is (in reality) having very negative thoughts. The inside/outside distinction does not matter to this point.

In serial cases of mixing, notice that the types of information delivered by VNMAs into an outer pretence from an inner pretence – information about affect, causation, time, etc. – are of course the very types that can be acted upon by VNMAs operating from the outer pretence into *its* surrounding space. This is exemplified by the Marigold mixed-metaphor Example (24), where fear is transmitted from inner pretence to outer pretence and thence in turn into reality. Indeed, these points are particularly powerful for (24), as our analysis relied very little on view-specific mappings. The only view-specific mapping needed

was the correspondence between Marigold's conscious-self-person and Marigold herself. In other respects the edifice of mapping rests simply on identity mappings and VNMAs.

This possibility of view-specific mappings not being involved very much, or at all, incidentally helps ATT-Meta deal with certain types of novel metaphor. For instance, the thought-as-cloud view can be entirely novel for ATT-Meta as long as adequate relevant information can be transferred by VNMAs.

5.4   Further discussion: Variability of analysis

We have already noted the question of how many pretences to use in a case of parallel mixing, and the point that whether a metaphorical utterance involves parallel mixing or not in a one-pretence case is a matter of theoretical judgment, because there is no objective criterion as to when more than one source subject matter is involved.

But in addition, it is often the case that it is not clear whether a serial or a parallel analysis is appropriate. For instance, consider (2), repeated here:

(32)   "We do not have a chocolate army [that] fades away at the first sign of trouble."

One analysis that could be suggested is that there is parallel mixing of (i) a metaphorical view of soldiers in the [British] army as *chocolate soldiers* and (ii) a metaphorical view of people leaving a physical or abstract situation as *fading*. The view in (ii) is a familiar one – for example one can talk about a crowd of people "fading away," as if the crowd were an image or the outer colouring of something. Similarly, in (i), assuming that the key point about the chocolate is its propensity to melt, we have an implicit use of the metaphorical view that is involved in saying "the crowd melted way."

However, this parallel analysis disconnects the fading from the properties of chocolate. It takes the sentence as making the same point about the army twice, in effect: once via the implication of melting (from the chocolate), and again separately from the explicit "fades." Another possibility, which may be more plausible, is that to take the fading to be connected to the chocolateness: there is serial mixing of (i) the metaphorical view of the soldiers as chocolate ones, and (ii) a metaphorical view of chocolate's melting as fading.

There may not be a single correct analysis. It may be more a matter of personal (unconscious) choice by the hearer. Or there may be advantages to one or other possibility. An advantage of the serial analysis is that it explains why the speaker would bother to mention both chocolate and fading. Also, a danger

with a parallel analysis is that one might try to find an aspect of chocolate that provides *different* information about the army than that provided by the fading, given the very fact that parallel mixing is often used to talk about different aspects of the target.

5.5   Conclusions

The article has sketched how a particular approach to metaphor, the ATT-Meta approach, can handle various aspects of mixed metaphor, and how various advantages in this handling drop out of its handling of metaphor in general. The scepticism about domain divisions, and the related focusing on individual mappings as opposed to whole metaphorical views, allows a finer grain of analysis and computational processing for mixing purposes. The use of guards in mapping specifications (correspondence rules) allows great flexibility in the use of mappings and particularly in the mixing of views, and allows special features of familiar mixes of specific views to be handled efficiently. The use of view-neutral mapping adjuncts not only provides great power in the handling of metaphor in general but also, by downplaying (in some cases to zero) the significance of view-specific mappings, it additionally facilitates the interactions inherent in mixed metaphor.

Acknowledgments

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