Relevance Theory and the construction of idiom meaning[*]

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Abstract

This paper proposes that the meaning a speaker intends in using an idiom on a certain occasion is pragmatically (re)constructed on-line by relevance-driven inferential mechanisms which take as input a set of highly accessible encyclopaedic assumptions from the concepts encoded by the idiom string and its constituent words. The depth to which the encoded concepts are processed, in arriving at the (ad hoc) concept the speaker intends as a component of the explicature of her utterance, is constrained at every stage by the search for an optimally relevant interpretation.

1 Introduction

The idea that the meanings of the constituents of most idioms are available during processing and contribute to understanding idiom meaning has figured prominently in the study of idiom strings both within linguistics and, particularly, within psychology (Cacciari & Tabossi, 1993; Everaert et al, 1995; Gibbs, 1994; Glucksberg, 2001; Nunberg 1978, Nunberg et al, 1994; Wasow et al, 1983). The study of the semantic analysability of idioms has given rise to a wave of interesting and fruitful experiments which have themselves led to the proposal of different (compositional) accounts of idiom representation and processing, alternatives to traditional (non-compositional) models (Cacciari & Glucksberg, 1991; Cacciari & Tabossi, 1988; Gibbs, 1990; Titone & Connine, 1999). Although, explicitly or implicitly, current psycholinguistic models agree that comprehension is dependent on the recognition of the speaker's intentions, very little has been said about the pragmatic processes that regulate idiom comprehension. Based on the pragmatic framework of Relevance Theory (Sperber & Wilson, 1986/1995; Wilson & Sperber, 2002a,b), this paper aims to fill this gap. Complementing experimental research, it provides a theoretically adequate and cognitively plausible pragmatic approach to idiom comprehension that accounts for the (non-arbitrary) relation between an idiom's linguistic form and its figurative

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meaning as well as for the way speakers and hearers exploit this relation in the flow of conversation.

2 The relation between the linguistic form of an idiom and its meaning

The meanings of words are arbitrarily stipulated in memory. The meanings of phrases and sentences, however, are derived compositionally from the meanings of their individual words and their syntactic structure. Since the meanings of idioms cannot be derived compositionally by the morpho-syntactic rules of a language (e.g. the meaning of *kick the bucket* cannot be derived from the meanings of the words 'kick', 'the' and 'bucket'), the standard belief is that they too must be arbitrarily stipulated in memory (Chomsky, 1980; Cruse, 1986; Fraser, 1970; Katz 1973). That is, although originally metaphorical, the linguistic forms of idioms are said to bear now no relation with their meanings. Furthermore, since idioms are just long words with no internal syntactic or semantic structure, very little modification is expected. Examples such as those in (1)-(3) are often use to back up this non-compositional hypothesis.

(1) **The bucket was kicked* by John.
(2) **The bucket*, John *kicked* yesterday.
(3) *I think he will *kick the rusty bucket* soon

Much current research has reacted against this standard view of idioms as non-compositional strings or long words by showing that not all idioms are as opaque or unanalysable as *kick the bucket*. For most idioms, we can establish some relation between their meaning and their form. In fact, the meanings of an idiom's elements often play a role in the way we use and understand idiom strings in conversation (Cacciari, 1993; Cacciari & Glucksberg, 1991; Gibbs, 1990; Gibbs & Nayak, 1989; Gibbs et al, 1989a,b; Keysar & Bly, 1995, 1999). Idioms can be syntactically transformed in various ways with their parts being modified, as in (4), (7), focused, as in (5), quantified, as in (5)-(7), or omitted and used as anaphoric references, as in (8)-(9).

(4) The most important thing now is that we *leave no legal stone unturned.*
(5) *Many strings were pulled* but he was not elected.
(6) Forget about this! You have *many other bigger fish to fry.*
(7) I think his father must *have pulled a few political strings* to get him out of jail.
(8) I have been a real idiot. She'll never take me back. That was *the last boat and I missed it*
(9) You *get off my back* and I'll *get off yours*!

Individual word meanings can become very much alive during the use and comprehension of idioms allowing the speaker to create new forms and meanings. This involves cases of semantic productivity, as in (4)-(9), lexical substitution, as in (10)-(11), lexical flexibility, as in (12), and discourse productivity, as in (13)-(14).

(10) Ok there. Now you are *barking up the right tree!*
(11) He absolutely hates me so if it is true he has found out about my affair, he must now be in my house *pouring the beans* to my wife.
(12)a. *Start/keep the ball rolling*
b. *Walk/tread on air*
c. *Fight/defend tooth and nail*
(13) A: I think you should be a bit less critical. Try to *put yourself in her shoes.*
B: I was in her shoes and came out of them.
(14) A: I am really angry you did not help me to get the job.
B: You have no idea *how many strings I had to pull* for you
A: Well, you did not pull them hard enough!

A common argument for current views of idioms is that idiomatic expressions do not form a homogeneous non-compositional class but rather a highly heterogeneous community which lie on a continuum of compositionality. Idioms vary regarding the extent to which the meanings of their individual constituents contribute to the overall figurative interpretation. At one end of the spectrum we have non-idiomatic phrases which are derived fully compositionally from the meanings of their parts. At the other end, we have non-compositional idiom strings (e.g. *kick the bucket, shoot the breeze, break a leg)* whose individual constituents are in a completely arbitrary relation to the overall idiom meaning. Most idiomatic expressions lie somewhere between these extremes, varying in the degree and ways in which the internal semantics of their constituents is motivated and plays a role in comprehension (e.g. *button one's lip, break the ice, give up the ghost, etc.*).

The relation between an idiom's form and its meaning may be more or less direct. It may be a one-to-one relation in that each word contributes independently to the figurative interpretation (e.g. the semantic relation between '*pop*' and '*utter*' and '*question*' and '*marriage proposal*' in *pop the question*). These idioms are typically known as 'normally decomposable' idioms (Gibbs & Nayak, 1989; Nunberg, 1978). It may be an all-to-one relation with the (literal) meaning of the whole phrase being semantically related to the figurative interpretation (e.g. *bury the hatchet, push the panic button*). These idioms are typically known as 'abnormally decomposable' idioms (ibid). Finally, the relation may be none-to-one in that the constituent words neither individually nor as a whole appear to be in any semantic relation to the idiomatic meaning (e.g. *chew the fat, break a leg*). These idioms are referred to as 'non-

decomposable'. The relation may also be more or less transparent with the constituent words contributing to idiom meaning rather literally (e.g. '*miss*' in *miss the boat*), metaphorically (e.g. '*blow*' in *blow one's stack*), hyperbolically (e.g. *eat one's heart out*) or not contributing at all to deriving idiom meaning (e.g. *kick the bucket, chew the fat, shoot the breeze*).

Idioms whose constituent parts contribute (normally or abnormally, literally or figuratively) to the overall idiomatic interpretation have been characterised as decomposable/compositional or analysable. Idioms whose constituent parts do not contribute to the overall idiomatic interpretation have been typically characterised as non-decomposable/non-compositional or unanalysable. Different typologies have been proposed in an attempt to classify idiomatic expressions (Cacciari & Glucksberg, 1991; Nunberg et al, 1994). I take the following notions to be important in our understanding of idioms although my definitions of them vary (slightly) from those found in the literature.

Conventionality: The relation between a certain string of words and a certain semantic representation. There is always an element of arbitrariness as to why a certain linguistic label is used to express a certain conceptual representation. There is some arbitrariness for instance as to why something costs *"an arm and a leg"* in English and not "*an eye of your face*" or "*an eye of your head*" as it does in Spanish and Italian (respectively).

Analysability: The degree to which the constituent concepts encoded by the idiom string can be used to access assumptions in memory which will contribute to the derivation of the intended interpretation.

Transparency: The relative ease with which these assumptions are accessed and implications derived.

The idea that idioms vary in their degree of compositionality (analysability) has led to a wave of experimental research, with the following sort of results. People seem to have strong intuitions enabling them to judge an idiom as being decomposable or non-decomposable (Gibbs & Nayak, 1989). Also, since for decomposable idioms (e.g. *pull strings, spill the beans, pop the question, miss the boat*), but not for non-decomposable idioms (e.g. *kick the bucket, chew the fat, shoot the breeze*), people can easily identify how each part of the idiom combines in the derivation of the figurative interpretation, decomposable idioms are more flexible (syntactically, semantically and lexically) than non-decomposable ones (Gibbs & Nayak, 1989; Gibbs et al, 1989a,b), as in (4)-(11) vs (1)-(3). Analysable idioms are also easier for children to acquire

(Cacciari & Levorato, 1989, 1999; Gibbs, 1991) and faster for adults to process (Gibbs et al, 1989a).

These findings are consistent with the idea that the relation between an idiom's form and meaning is not completely arbitrary, and inconsistent with the standard belief that idioms are long words with the internal semantics of their constituents playing no role during processing. Unlike traditional accounts, current (compositional) accounts of idioms are grounded in the belief that in understanding idiom strings, people attempt to perform some type of compositional reading. Since, in processing analysable but not unanalysable idioms, the output of this compositional processing contributes to the derivation of the idiomatic interpretation rather than disrupting it, it follows that analysable idioms are easier to acquire, understand and modify, as in (4)-(11) vs (1)-(3). What the literature does not provide, however, is the pragmatic mechanisms that constrains the amount of information from the concepts encoded by the idiom constituents that is actually processed during the comprehension process. In this paper, I present a relevance-theoretic account of idioms which fills this gap.

3. Pragmatic background

3.1 Relevance Theory

Relevance Theory is grounded in the idea that our cognitive systems have evolved in the direction of increasing efficiency and are now set up so that they tend automatically to maximise relevance[1]. Our perceptual system tends to pick up sounds and sights that are potentially relevant to us (e.g. smoke in our house rather than in someone else's). Our memory retrieval mechanisms tend to activate the assumptions which are potentially relevant in the context (e.g. assumptions about fighting fire rather than pollution from our knowledge of smoke). Our inferential systems tend to draw the greatest possible cognitive effects (e.g. plans to rescue the children) from the combination of the new information and context, and so on. New information derived from external stimuli (utterances, sounds, sights) or from internal representations (thoughts, memories) is relevant to an individual if it yields cognitive effects (e.g. by answering a question, confirming a hypothesis, correcting a mistaken assumption etc.) for no unnecessary processing effort. Cognitive effects can be achieved by contradicting and eliminating an existing assumption, by strengthening an existing assumption or by combining with existing assumptions to yield contextual implications. The mental processes at work in deriving cognitive effects involve the expenditure of processing effort so that the more processing effort expended the less the relevance.

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[1] This is captured by The Cognitive Principle of Relevance: Human cognition is geared to the maximisation of relevance (Sperber & Wilson, 1986/1995).

Relevance of an input to an individual
I. Other things being equal, the greater the cognitive effects (of an input to an individual who processes it) the greater the relevance (to that individual at that time).
II. Other things being equal, the smaller the processing effort required to derive those effects, the greater the relevance (of the input to the individual at that time)

Sperber and Wilson claim that among all the potential stimuli in our environment, ostensive stimuli, such as utterances, have a special property, which is that they inevitably raise an expectation of relevance in an addressee (an expectation that non-ostensive stimuli do not activate). In return for the demand on our attention (hence our processing resources) we are licensed to presume that an utterance will be optimally relevant, as defined below.

Communicative Principle of Relevance
Every utterance communicates a presumption of its own optimal relevance.

Optimal Relevance
An utterance is optimally relevant iff
a. It is relevant enough to be worth the hearer's processing effort.
b. It is the most relevant one compatible with the speaker's abilities and preferences.

On this approach, the search for relevance is a basic feature of human cognition which is exploited in ostensive-inferential communication. Speakers and hearers have powerful mind-reading abilities. In producing a certain utterance, the speaker tends to take for granted what background assumptions the hearer is likely to use, what inferences he is likely to draw, etc. Since she can predict to some extent the line of thought the hearer is likely to take in processing her utterance and so what information is likely to be relevant to him at that moment, she will produce, according to her own abilities and preferences, an utterance which will enable the hearer to derive the intended effects for the investment of as little processing effort as is compatible with the speaker's abilities and preferences. On the assumption that the speaker is aiming at optimal relevance, and is competent to achieve it, the hearer is entitled to follow a path of least effort in deriving cognitive effects and to take the first interpretation that satisfies his expectations of (optimal) relevance to be the one the speaker intended. This is captured by the relevance-theoretic comprehension procedure which, together with the notion of optimal relevance and the communicative principle of relevance, comprise the key components of Relevance Theory.

Relevance-theoretic Comprehension Procedure
(1) Follow a path of least effort in computing cognitive effects: Test interpretive hypotheses (disambiguations, reference resolutions, enrichments, implicatures, etc.) in their order of accessibility.
(2) Stop once your expectations of (optimal) relevance are satisfied.

In conclusion, Sperber & Wilson's pragmatic theory postulates a relevance-driven inferential mechanism (the relevance-theoretic comprehension procedure) dedicated to processing ostensive stimuli and thereby to recognising the intentions underlying these stimuli. An utterance (as ostensive stimulus) triggers automatically in the mind of the hearer both a presumption of optimal relevance and the relevance-theoretic comprehension procedure which will guide the hearer to bridge the gap between what is linguistically encoded and what is communicated both, explicitly and implicitly.

3.2 Decoding and inference

It is widely agreed among pragmatists that utterance comprehension involves two distinct types of cognitive processes: a process of linguistic decoding and a process of pragmatic inference. In Relevance Theory (Sperber & Wilson, 1986/1995, 1998a; Wilson & Sperber, 2002a,b; Carston, 2002), the distinction corresponds to the distinction between (linguistic) semantics and pragmatics. Utterances are automatically decoded by the language module into a certain semantic representation or logical form (a structured set of encoded concepts), which serves as automatic input to a process of pragmatic inference. Guided by the relevance-theoretic comprehension procedure, the aim of the hearer is to develop this logical form at the explicit level and complement it at the implicit level so as to arrive at a hypothesis about the set of communicated assumptions (explicatures and implicatures) that constitute speaker meaning. In (15), the semantic representation obtained from decoding Julia's utterance underdetermines both what is explicitly (16) and implicitly (17) communicated[2].

(15) John: Have you got a minute to talk now?
Julia: Sorry. I have to run to the bank and get some money before it closes
(16) JULIA_x HAS TO RUN* TO THE BANK_1 AT T_i AND [THEN] GET SOME MONEY BEFORE THE BANK_1 CLOSES
(17) JULIA_x DOES NOT HAVE TIME TO TALK TO JOHN_y AT T_i

[2] There is no agreement within the literature as to where this distinction should be drawn. I merely follow the relevance-theoretic position as it is outside the scope of my paper to present the different views (see Carston, 2002 for detailed analysis and comparison).

The output of decoding an utterance, such as (15) does not result then in its interpretation. Pragmatic processes operate to disambiguate ambiguous terms (e.g. 'bank'), assign reference to indexicals (e.g. 'I', 'it'), and even enrich the proposition expressed by adding extra conceptual material (AND [THEN]).

According to Relevance Theory, both explicatures and implicatures are derived in parallel by a process of mutual adjustment (Wilson & Sperber, 2002b). Following a path of least effort, the hearer starts considering hypotheses about explicit content and implicatures in their order of accessibility until he arrives at a combination that satisfies his expectations of relevance. In processing (15), for instance, the hearer considers a highly accessible assumption (e.g. Julia is in a hurry) as a potential implicature of the utterance even *before* a complete explicature is derived. By backward inference, he may enrich the explicit content to the point where it warrants this implicature. This may involve taking the concept RUN encoded by *run* and processing it in a rather shallow manner, considering only the very general assumption that running involves speed to derive the implication that Jane will move fast to get to the bank on time. As a result, the encoded concept is broadened (RUN*) so that it refers not simply to cases of literal running but, more generally, to cases in which one, being in a hurry, walks relatively fast. It is this concept RUN*, constructed ad hoc, and not the concept linguistically encoded, that is taken to be a constituent of the speaker's thoughts and of the proposition expressed by her utterance, as in (16).

This example of a loosely used term illustrates the current relevance-theoretic argument that although concepts are linguistically decoded, the output of this decoding is not immediately accepted as the constituent of the thought intended by the speaker. Instead, the concept encoded by a word acts as a mere template to infer the concept expressed by the use of that word. In other words, taking the inferential account to communication seriously, it is claimed that the semantics/pragmatics distinction holds not only at sentence level but also at word level (Carston, 1996, 2002; Wilson & Sperber, 2002a,b). This hypothesis is grounded both in the idea that our minds are flexible enough to construct far many more concepts than our languages can linguistically encode (see Barsalou 1983, 1987, 1993) and in the idea that our inferential mechanisms are powerful enough to construct the concept intended on the basis of the encoded concept and the context in which it is processed (Sperber & Wilson, 1998b).

The concept expressed by the use of a familiar word may depart from the concept encoded by the use of that word in various ways. It may be narrower, as in (18), broader, as in (19), or both narrower and broader, as in (20).

(18)a. I cannot *open* the freezer because of the ice
b. (Dentist) *Open* your mouth

(19)a. Mark passed everything with distinction. He is such as *genius*!
b. I have a *square* spot on my leg
(20) With five older sisters, David has always been the *prince* of the house

In understanding each of (18)-(19), the hearer, following a path of least effort, starts considering just the first (few) most accessible assumption(s) from the encyclopaedic entry of the encoded concept and starts processing them in the wider context of the utterance together with other hypotheses about explicatures and implicatures. He continues deriving cognitive effects from their combination until he arrives at a combination of explicit content, context and implicatures that satisfies his expectations of relevance, at which point he stops. Because he often arrives at an optimally relevant interpretation before processing the encoded concepts to any depth, the resulting concepts may be narrower than, or broader than, or simply overlap with, the original encoded concepts. Concept broadening and narrowing are not different processes, but rather different instantiations of a single process of conceptual adjustment which takes place in deriving the proposition expressed by the speaker's utterance (Carston, 1996, 2002). The new (narrower or broader) concept constructed in this ad hoc fashion will be taken to be appropriately close to the one the speaker intended as a constituent of her thoughts and of the explicature of her utterance.

In (18), the encoded concept is automatically narrowed to denote only a subset of particular ways of opening. In (19), it is broadened to the point where it includes not only real geniuses, or geometrically perfect squares, but, more generally, very clever people, such as Mark, and square-like shapes, such as the spot on the speaker's leg. Finally, in (20), processing only some of our encyclopaedic assumptions about princes (e.g. the knowledge that princes are well looked after, that they get everything they want or need, etc.) during utterance comprehension results in a simultaneous narrowing and broadening of the encoded concept. The resulting ad hoc concept PRINCE* is narrower than the encoded concept in that it denotes only princes who are treated in a special way (excluding poor princes or those in exile) and broader in that it does not only denote members of a royal family but, more generally, ordinary people who receive very special treatment typical of princes.

A crucial point about examples (18)-(20) is that the same process of conceptual adjustment is at work in understanding literal (18), hyperbolic (19a), loose (19b) and metaphorical uses (20). Both literal and non-literal interpretations are context-dependent and pragmatically constructed on-line via relevance-driven inferential mechanisms, which take what is linguistically encoded (the logical form and its constituent concepts) as merely a guide in inferring speaker meaning. This process of pragmatically fine-tuning the encoded concepts takes place as a natural by-product of the search for an optimally relevant interpretation, which can be attributed as a speaker's meaning.

In the next section, I will propose that the on-line understanding of idioms involves no different processes or mechanisms from those involved in understanding these utterances. I will claim that decoding the concepts encoded by an idiom and its constituents, like decoding the concept encoded by a lexical item, merely gives access to a set of logical and encyclopaedic information, a subset of which is considered on-line in constructing the figurative meaning intended by the speaker.

4. The pragmatic construction of idiom meaning

4.1 Basic (relevance-theoretic) hypotheses about idiom comprehension

On some occasions, the speaker thinks the most efficient way of communicating her intended message – the way that would involve the least expenditure of processing effort to derive the intended effects – is through the use of an idiomatic string, whether in its original or a novel form. She predicts the hearer will recognise the string, retrieve the conceptual representation it encodes and add some of its accompanying information to the context to derive the set of implications she intended. It is because idioms are conventional metaphors that denote ordinary situations that they provide a convenient short-cut to the derivation of a wide range of implications for a relatively low processing effort. This paper will look in detail at how the process of idiom comprehension works.

Decoding the utterance containing the idiom triggers automatically in the hearer's mind both a presumption of optimal relevance and the relevance-theoretic comprehension procedure which will guide the hearer in bridging the gap between what is linguistically encoded and what is communicated both, explicitly and implicitly. We have seen that Relevance Theory argues that pragmatics does not only operate at sentence level but also at word level in deriving the proposition expressed by the speaker's utterance. I want to argue that pragmatic processes often operates at phrase level too. Arriving at the meaning intended by the speaker in using an utterance containing an idiom involves a simultaneous pragmatic adjustment of word, phrase and sentence meaning which takes place during the process of deriving explicit content, context and implicatures. This process continues until the hearer arrives at a combination that satisfies his expectations of relevance. It is the ad hoc (phrasal) concept resulting from the process of deriving an optimally relevant interpretation that will be taken to be the concept the speaker intended as a constituent of the explicature of her utterance. In this way, idiom strings, both in their standard and variant forms, can be seen to involve just the same mechanisms as are employed in arriving at the meaning intended by literally, loosely, hyperbolically and metaphorically used words, as in (18)-(20).

4.2 The comprehension of idiomatic expressions

In understanding an utterance containing an idiom, the hearer takes the concepts encoded by the utterance and by the idiom string as clues to the explicatures and implicatures intended by the speaker. Using the relevance-theoretic comprehension procedure, he follows a path of least effort and starts considering a few highly activated assumptions from the encyclopaedic entries of the encoded concepts to use as contextual assumptions in the search for implications. Processing the encoded concepts (initially) in this shallow manner often results in an adjustment of their denotation and hence in the construction of new ad hoc concepts on–line, as in (18)-(20). For instance, in interpreting an utterance such as (21), the hearer typically takes the encoded concepts and processes only some of the information they give access to.

(21) I cannot stand the way my boyfriend is *tied to his mother's apron strings*

He may take the encoded concept TIE, for instance, and consider the assumption that tying involves some kind of attachment. Processing the concept rather loosely often results in the construction of a broad (ad hoc) concept (TIE*) which denotes virtually any process in which some degree of attachment is involved. This ad hoc concept is then continuously adjusted as new information derived from the rest of the utterance is processed. The concepts encoded in the string are processed following a path of least effort in deriving implications, with hypotheses about explicatures and implicatures being mutually adjusted at every stage. At some point during this process, the concept encoded by the idiom string as a whole is retrieved from memory ([TO BE TIED [TO [ONE'S MOTHER'S APRON STRINGS]]]*[3]). Rather than involving a switch of processing mode, the hearer takes this concept also as a further clue to the speaker's meaning and he starts considering some of its accompanying information (e.g. the assumption that someone with this property is too close to their mother, not independent enough for their age, and so on) as additional contextual assumptions. These assumptions are added to the context in their order of accessibility in order to derive the set of intended cognitive effects (e.g. The speaker's boyfriend is very immature, he needs to be more independent, the speaker is unhappy with the situation, etc.). In this case, the assumptions considered in processing the encoded concept TIE, which is broadened to TIE*, contributes to, rather than disrupts, the derivation of the intended effects. This is, however, not always the case. Consider (22):

(22) Let's go and *chew the fat* for a while

[3] For the mental representation of idioms see Vega-Moreno (2001).

At some point during processing (22), the concept underlying the idiom string ([CHEW [THE FAT]]*) is retrieved from memory and some highly accessible assumptions from its encyclopaedic entry are considered in their order of accessibility. Having processed some assumptions from the concepts CHEW and FAT at an earlier point may present the hearer with some inconsistency. On the presumption that the speaker is aiming at optimal relevance, he will test in context the most accessible meaning to see whether it achieves enough cognitive effects. The speaker's familiarity with the string and the precise expectations about relevant implications often make the figurative meaning highly accessible. If, when processed in context, this interpretation provides enough cognitive effects for the effort invested, the hearer would take it to be the one the speaker intended; if not, he looks again. Since analysable idioms, as in (21), help the hearer to arrive at the intended cognitive effects with less investment of processing effort than unanalysable strings, as in (22), they are typically understood faster than unanalysable idioms (Gibbs et al, 1989a). Furthermore, since in understanding both analysable and unanalysable idioms, word and idiom meaning are activated and often used as input in an attempt to construct the intended interpretation, hearers can then construct, in subsequent discourse, new metaphorical utterances which echo these representations, as in (13)-(14) and (23).

(23) A: Has horrible old Mr Thomas *kicked the bucket* yet?
B: I don't think he has even touched it!

An important advantage of this model is that it accounts for how idiom strings are understood in both their original and novel forms. Arriving at the intended interpretation of an idiom, such as those in (4)-(11), often involves considering initially just a few highly accessible assumptions from the concepts encoded by the utterance. In (7), repeated below, this means taking, not only the encoded concepts PULL and STRINGS, but also the encoded concepts FEW and POLITICAL as input for inferring speaker meaning.

(7) I think his father must *have pulled a few political strings* to get him out of jail

In searching for implications, the hearer, following a path of least effort, starts pulling out from these concepts a few of their encyclopaedic assumptions and adding them to the context of the utterance in their order of accessibility to derive the set of explicatures and implicatures the speaker intended. As in (21), this may involve adjusting the encoded concepts accordingly. The hearer may consider, for instance, highly accessible assumptions associated with the concepts PULL and STRING, namely that pulling involves exerting some kind of force and that strings are things on

which one can exert some force, broadening the concepts accordingly (PULL*, STRINGS*). These broader concepts may be further adjusted as new information is processed.

The hearer's expectations of relevance, and the resemblance in form (phonological, lexical, syntactic) between the variant and the standard form, triggers the retrieval from memory of the concept underlying the original idiom (e.g. [PULL [STRINGS]]*) at some point during processing of the utterance. At this point, the concepts encoded at both word and phrase level are adjusted in accordance with hypotheses about speaker meaning to the point where the hearer arrives at an explicit content that warrants the derivation of the expected implicatures. This adjustment results in the derivation of one or two strong implicatures (e.g. Tom's father helped him to get out of jail) and a wider range of weak implicatures (e.g. some political influence was involved in freeing Tom, Tom's father had to ask for favours to get Tom out of jail, he knows influential people, the procedure to free Tom was not completely legal, etc.). It is the ad hoc concept constructed on-line as a by-product of arriving at an optimally relevant interpretation, namely [PULL* [A FEW POLITICAL STRINGS*]]*, and not the set of encoded concepts or the concept encoded by the idiom in its original form, that is taken to be close enough to the concept the speaker intended as a constituent of the thought she is expressing. It is then this concept that is taken as a constituent of the proposition expressed by her utterances and the one that warrants the derivation of the intended implications just mentioned.

It is worth noticing that this account does not claim that any literal interpretation is derived. Processing an idiom does not involve recovering a literal meaning for the utterance that contains it (Brobow & Bell, 1973), not even before the idiomatic expression is retrieved from memory (Cacciari & Tabossi, 1988). Idiom comprehension, like utterance comprehension more generally, is not literal or figurative but relevance-driven. The hearer does not need to process the literal meaning of every encoded concept as it is encountered. Instead, only some highly accessible assumptions from the encyclopaedic entries of the encoded concepts are processed on-line by following a path of least effort in deriving implications. The output of the interpretation process may be idiomatic, literal, metaphorical, or otherwise. Crucially, the amount of processing effort invested at word, phrase and sentence level in deriving the intended interpretation is highly constrained by the relevance-theoretic comprehension procedure and so kept as low as possible in looking for the intended cognitive effects. It is because of this, and because the construction of idiom meaning is context-dependent, that the effort invested in processing the encoded concepts during idiom comprehension varies from utterance to utterance.

4.3 Idiom analysability and Relevance

In line with much current research on idioms, I propose that idiom strings do not form a homogeneous group. Instead, they vary in the extent to which the concepts encoded by their constituent words contribute to the overall idiomatic interpretation (analysability) and in the ease with which these assumptions can be accessed in a particular context (transparency). For some idioms, one of the concepts encoded by the idiom string actually acts as a better clue to the intended interpretation than the rest, as shown in (24). For some idioms, the whole string is metaphorical, as in (25), or hyperbolical, as in (26). Some idioms seem to involve words which are used literally, as in (27a), or loosely (e.g. metaphorically), as in (27b). Finally, many idioms involve the use of pro-concepts (e.g. *have, give, take, put, give*), which need to be pragmatically enriched in every context, as in (28).

(24) *Spill the beans, break the ice, bark up the wrong tree, fed up to the back teeth*
(25) *Back to square one, sit on the fence, stab someone in the back, hit the target*
(26) *Cry one's eyes out, eat one's heart out, not sleep a wink, cost the earth*
(27)a. *Promise the moon, cost an arm and a leg, start from scratch*
b. *Pull strings, take under one's wing, pluck up courage*
(28) *Have one foot in the grave, put one's foot in one's mouth, put one's cards on the table*

In aiming at achieving sufficient cognitive effects by investing as little processing effort as possible, the hearer would take the concepts encoded by the constituent words in these strings (as they are embedded in utterances) and process some of the assumptions they give access to. An initially shallow compositional processing of the strings in context would often result in an automatic narrowing or broadening of the encoded concepts, so that loose, hyperbolic and metaphorical interpretations start to be derived. This bottom-up process of meaning construction involves no different mechanism from that involved in constructing the meaning of the examples in (18)-(20).

For some idioms, broadening occurs at word level, so that some words are interpreted loosely or metaphorically, as in (27). For some idioms, the whole phrase is automatically broadened online, as in (25)-(26), so that a loose, metaphorical or hyperbolic interpretation is derived. The shallow compositional processing of the idioms *stab someone in the back* or *hit the target* in (25), for instance, may involve an automatic broadening of the meanings of the phrases so that they pick out used not simply cases in which backs are stabbed or targets hit but more generally cases in which someone is hurt and betrayed and cases where someone gets something right (see Glucksberg, 2001 for a similar approach).

It is important to notice that the fact that the concepts encoded by the idiom provide access to a set of assumptions which, when added to the context, may contribute to the derivation of the intended interpretation does not imply that hearers always access this information when processing an idiom. Aiming to arrive at the intended effects by expending as little processing effort as possible, the hearer often arrives at the appropriate interpretation of the idiom before processing the encoded concepts to any depth. At some point during processing, the concept encoded by the idiom is also retrieved from memory and some of the information it gives access to is added to the context in order of accessibility to derive the intended set of implications. The process of meaning construction continues often broadening the encoded concepts and narrowing the concept encoded by the idiom to the point where the resulting conceptual representation satisfies the hearer's expectations of relevance. Since the hearer often arrives at an optimally relevant interpretation before the encoded concepts are processed to any depth, we often do not realise that idiomatic expressions may have a literal reading too.

The amount of processing effort invested in deriving the intended interpretation depends on the ease with which the hearer can arrive at a set of cognitive effects that satisfies his expectations of relevance at a particular time. The greater the contextual clues and degree of familiarity with the idiom, the more easily the idiom meaning can be derived, and hence the lower the amount of processing effort that needs to be invested (at word level) in processing the string. For idiomatic strings in their standard form, processed in a context biased towards the idiomatic interpretation, the hearer arrives at the intended meaning soon after retrieving the concept encoded by the string from memory (Gibbs, 1980; Ortony et al 1978), without the concepts encoded by the constituent words being processed, although they will have been activated. For idiomatic strings in their standard form, processed in a context where the idiomatic interpretation is not predicted, the hearer may process the concepts encoded by the constituent words in a very shallow manner, adjusting word and idiom meaning (once this is retrieved from memory) until he arrives at an interpretation that is relevant in the expected way. Since this shallow processing of encoded concepts contributes to the derivation of cognitive effects for analysable but not for unanalysable idioms, the former will be processed faster than the latter (Gibbs et al, 1989a), as in (21) vs (22). For idiomatic strings in their non-standard form, as in (7) above, the hearer takes the concepts encoded by the constituent words and the (standard) conceptual representation being echoed as input to infer the ad hoc concept intended by the speaker. Because the concept intended by the speaker is constructed on-line by considering highly accessible information from the concepts encoded by the idiom and its constituents (and context), an idiom variant should not, in principle, take longer to understand or involve any extra processing effort than literal strings, as in (18).

In testing idiom variants, McGlone et al (1994) found that familiar idioms take less time to process than both idiom variants and literal phrases, but that idiom variants of the sort 'he *got out of the right side of the bed*', 'he didn't *spill a single bean*' take no longer to understand than literal paraphrases of the same length (e.g. 'he didn't reveal a single secret'). McGlone, Glucksberg and their colleagues explain these findings by arguing that, for some idioms, the individual constituents in the string have become polysemous with time, developing an extra (figurative) sense which is selected during the comprehension process (this is the Phrase Induced Polysemy (PIP) model). In this way, in processing the utterance 'he did not *spill a single bean'* the hearer selects one of the meanings of the words '*spill'* (reveal) and '*beans'* (secrets), when these words co-occur, and combines them compositionally to derive the idiomatic interpretation.

Although, for some idiom parts, we may occasionally end up developing a new sense, I believe this is not the norm. My account provides an alternative explanation for these findings. I have shown how the concept conveyed by the use of an idiom or an idiom variant, like the concept conveyed by the use of a lexical item, as in (18)-(20), and a literal string, is not obtained by mere decoding but is constructed, on the basis of highly accessible assumptions from the encoded concepts, via relevance-driven inferential mechanisms. Since understanding idiom variants does not typically involve any different process or any further processing effort than understanding literal strings, there is no reason, in principle, why an utterance such as 'he did not *spill a single bean*' should take longer to process than its literal counterpart 'he did not reveal a single secret'.

Crucially, unlike the psycholinguistic models that have been proposed (Cacciari & Tabossi 1988, Gibbs 1990, Glucksberg 2001) the relevance-theoretic account presented here provides a cognitively plausible and theoretically adequate pragmatic explanation of why some idiom variants are accepted by the hearer and some are not. For an utterance to be optimally relevant, the amount of effort invested in processing the concepts encoded by the idiom constituents needs to be offset by extra cognitive effects not derivable from using the string in its original form. This enables us to distinguish the acceptable variants in (4)-(11), some repeated as (29), (31) and (33), from the unacceptable variants in (1)-(3), (30), (32) and (34).

(29) The most important thing is that we *leave no legal stone unturned*
(30) *I think you should *turn over a new legal leaf*
(31) *Many strings were pulled* but he was not elected.
(32) *He had *many feet in the grave* when I saw him
(33) He absolutely hates me so if it is true that he has found out about my affair, he must now be in my house *pouring the beans* to my wife
(34) *You can trust me, you know I will never *uncover the beans*

On the hypothesis that the speaker is aiming at optimal relevance and hence not putting the hearer to gratuitous processing effort, the hearer takes the concepts encoded by each of these examples as input for deriving the speaker's meaning. The altered form of the idiom requires the expenditure of extra processing effort on the part of the hearer to derive the intended interpretation. For the utterance to achieve optimal relevance, this processing effort must then be offset by enough cognitive effects, or a degree of unacceptability would result. In (29), (31) and (33), as in each of (4)-(11), communication is successful because the encoded concepts LEGAL, MANY and POUR give access to a few highly accessible assumptions (e.g. about law, quantity, intentionality) that, when combined with the set of assumptions being considered from the phrasal concept encoded by the idiom as a whole, yield enough cognitive effects to offset the effort invested. These example indeed yield some extra or different cognitive effects not derivable from the idiom in its original form (e.g. some legal problems have to be solved, quite a few connections have been established, the revelation was intentional, etc.).

Processing the utterances in (1)-(3) and (30), (32), (34) would not normally satisfy the hearer's expectations of optimal relevance unless it is clear from the context the speaker is using a pun, referring to a magical word etc. Only in those cases would the extra processing effort invested in understanding this utterance be rewarded with extra cognitive effects (e.g. they involve humour, irony, wit etc.). In normal contexts, however, focusing the word 'bucket', as in (2) or adding the word 'legal', as in (30), makes the hearer take the encoded concepts BUCKET and LEGAL and start searching for assumptions which, when added to the context, would allow him to derive an appropriate set of implications. If, after investing a certain amount of effort, the hearer has not been able to derive enough cognitive effects to offset this effort (e.g. he has not been able to find information in the encyclopaedic entries of these concepts that would lead to the derivation of enough cognitive effects) he would stop processing and communication would fail[4].

Unlike (31), where the hearer can derive extra implications (e.g. the implication that quite a few connections were established) not derivable from the use of the original form, the hearer of (32) cannot find a reason for the quantification. Quantifying the word '*foot*' may result in the derivation of an interpretation which is rejected by the hearer as being irrational and inconsistent with his knowledge of the world. In the absence of a special context (e.g. a play, a cartoon etc.), the hearer won't be able to derive extra or different cognitive effects that would offset the effort invested in processing the idiom variant. Finally, substituting the word '*uncover*' for '*spill*' in (34) involves the expenditure of extra processing effort by the hearer. Since this effort is

[4] In aiming to find an optimally relevant interpretation, the hearer may derive the literal interpretation which when tested in context may or may not derive enough cognitive effects. If it does, he would take it as the intended interpretation and would stop processing.

not rewarded by the derivation of any extra or different cognitive effects not already derivable from the string in its original form, communication is not successful. It is worth noticing however, that in cases whether the speaker of these utterances is a young child or a non-native speaker, the variant may be recognised as a mistake and the utterance may achieve optimal relevance, given that it is the most relevant utterance the speaker could have produced given his abilities (e.g. given his knowledge of the language). This is captured by clause b in the definition of optimal relevance.

4.4 Conceptual adjustment and denotation of idiom strings

As with metaphors, one important reason why we produce idiom variants is to communicate a concept which we use in our thought but for which we have no word in our language. However, unlike metaphors, we can often communicate this concept by modifying a certain idiom for which we have a stable conceptual representation in memory. In using an idiom variant, we encourage the hearer to narrow the original concept to the point where he can derive the set of implications we intend to communicate. For instance, in arriving at an optimally relevant interpretation of (7), as outlined above, the hearer would construct a new ad hoc concept [TO PULL* [A FEW POLITICAL STRINGS*]]* which denotes a subset of the situations denoted by the concept [PULL [STRINGS]]*. It denotes situations in which one uses some politicians as 'puppets' to make them exert some influence so to gain some benefit from it, while it excludes situations in which influence is exerted by other means. It is this (probably one-off) narrower ad hoc concept constructed on-line by adjusting word and idiom meaning, and not the concept encoded by the idiom in its original form, that the hearer takes to be a constituent of the speaker's thoughts and of the proposition expressed by her utterance. This ad hoc concept is specific enough to warrant the implicatures intended by the speaker. Since using the idiom in new ways revitalises the metaphorical nature of the expression, these may include one or two strong implicatures plus a wider range of weaker implicatures.

The representation of idioms we store is rather metaphorical and often semantically underspecified, denoting a wide range of actions, processes, and behaviours. This is partly why these expressions can keep their figurative flavour despite being lexicalised. Furthermore, because most idioms encode a rather unspecified concept, they often need to be pragmatically enriched in context. A certain (stereotypical) narrowing of the concept encoded by the idiom occurs in understanding most idioms (as it does in understanding virtually every word), but it is more obvious when it comes to idiom variants and idioms referring to some notion of time or space, as in (35)-(38):

(35) After the Paddington derailment, trains arrive *at snail's pace*

(36) After she broke her hip, my grandma walks *at snail's pace*
(37) My husband is very handy. He painted the house *in the twinkling of an eye*
(38) My husband got dressed *in the twinkling of an eye*

The expressions in (35)-(38) are used to communicate different degrees of speed and hence different meanings. The encoded concept [AT SNAIL'S PACE]* is enriched differently on each occasion so as to warrant the derivation of an appropriate set of implicatures. In (35), these may include the implication that trains are running at fewer kilometres per hour than they used to, that journeys take longer than usual, etc. In (36), however, it would include the implications that the speaker's grandma takes considerably longer than other people would to get anywhere, that she is not in good physical condition, etc. In similar ways, the concept encoded in (37)-(38) is enriched in context in different ways with, the resulting concept - [IN THE TWINKLING OF AN EYE]* and [IN THE TWINKLING OF AN EYE]**, respectively - contributing differently to the truth-conditional content of the utterance. Although (37) would be judged as true if the speaker's husband took three hours to paint a three-bedroom house, the same would not hold for (38), as taking three hours to get dressed is quite a long time. The concept encoded in (38) is narrowed to the point were it warrants the implicature that the speaker's husband got dressed in just a few minutes, enabling them to leave promptly.

5. Conclusions

In this paper I have claimed that the meaning the speaker intends to convey by the use of an idiom is pragmatically (re)constructed on-line by relevance-driven inferential mechanisms which takes as input a set of highly accessible encyclopaedic assumptions from the concepts encoded by the idiom string and its constituent words. The amount of processing effort invested, and the depth of processing of the encoded concepts, is highly constrained at every stage by the search for an optimally relevant interpretation. It is because, in understanding idioms, conceptual adjustment takes place at word and phrase level that this model can account for why idioms often swing between literal and figurative meanings, and for why they often exhibit different degrees of flexibility and productivity in the flow of conversation.

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