

**"COGNITIVE CONSTRAINTS ON DIRECTIONALITY IN THE SEMANTIC
STRUCTURE OF POETIC VS. NON-POETIC METAPHORS"**

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SUMMARY

The present paper focuses on the issue of directionality in the semantic structure of poetic vs. non-poetic metaphors. Assuming that the mapping of properties is structured in a principled way, the question is: What are the constraints on mapping in the case of non-poetic metaphors (i.e., conventional metaphors, and/or artificial metaphors invented specifically for psychological tests). This question will be discussed in section 1, which introduces two major constraints which non-poetic metaphors conform to, viz. their directionality.

The second question, pertains to poetic metaphor: do poetic metaphors equally respect the above constraints? The importance of this issue stems from the widely held belief among students of literature and related disciplines, that poetic language deviates from the rules underlying standard, non-poetic language. The present paper suggests, on the basis of a large scale analysis of literary metaphorical comparisons, that, surprisingly enough, poetic metaphors do respect the above constraints, similar to their non-poetic counterparts. An account is proposed, bearing on the idea of the Gestaltian "Cognitive reference point" is proposed and discussed in some detail.

Introduction

The main thrust of recent growing interest in metaphor represents a marked shift from viewing metaphor as a literary figure or device to viewing metaphor as a broader cognitive mechanism that plays a key role in variety of cognitive processes such as concept formation, concept acquisition, induction, problem solving, as well as other, non psychological processes (cf. Lakoff 1987; Ortony 1979; Shen 1992a; 1992b) [see note 1]. This shift has yielded a growing interest in an array of non-poetic metaphors, such as conventional metaphors, artificial metaphors (constructed for experimental purposes), and metaphors constructed for explanatory purposes (e.g., metaphors in science). This recent focus on non-poetic metaphor raises the question of whether the generalizations regarding non-poetic metaphors apply equally to poetic ones, or whether there is a difference between them.

This paper addresses this general issue with respect to a major structural aspect of metaphor, which has become central in the study of (non-poetic) metaphors: directionality in the structure of metaphors.

A metaphor is commonly defined as the mapping of properties from a certain Source Domain onto the Target Domain (see Lakoff and Johnson 1980; Gentner 1983; and

others). Thus, in interpreting "cigarettes are like time bombs" one maps properties from "the time bomb domain" (the source domain) onto the "domain of cigarettes" (the target domain)." (Hereafter I shall use "source domain" [in this particular case "time bomb domain"], and "target domain" [for instance, "cigarette domain," and accordingly, "source term" [in this particular case "time bomb"], and "target term" [in this case "cigarettes"]]).

Several relevant questions may be posed regarding this inter-domain mapping, such as how do we identify two components as belonging to two different conceptual domains? or, which properties undergo mapping from one domain to another? These issues will not be dealt with here (cf. e.g., Shen 1991; 1992a; 1992b; 1993:). Rather, I will focus here on the issue of directionality of mapping from the source domain onto the target domain in poetic vs. non-poetic metaphors.

Note, that the issue of directionality can be examined from two independent aspects: On the one hand one may analyze the directionality of the process of metaphor interpretation. This, interpretative aspect, has to do with the directionality which is imposed by the metaphor interpretator on the metaphorical utterances, while interpreting it. However, there is a different, though related, aspect of that issue, pertaining not to metaphor interpretation, but rather to the semantic structure of metaphors. Here, we are talking of directionality (or asymmetry) in the semantic structure of the metaphor, namely, the semantic characteristics of the target vs. the source concepts, regardless of the interpretation of metaphors. For instance, one may argue (as indeed I will do later on) that the conventional metaphors' structure exhibit semantic directionality in that their source terms tend, typically, to represent more concrete concepts than their target terms. Such a claim does not involve any claim with respect to the processing of metaphors. This is merely a description of the semantic characteristic of the metaphor components, rather than on metaphor interpretation. My point is not that the interpretative and the semantic aspects of directionality are totally unrelated, but, rather, that, theoretically, they can be independently defined and described. In fact, one may assume that if a given directionality in semantic structure is statistically prevalent in metaphors in general, it is more likely than not, that this semantic structure would be easier to process than its inverse.

Given this distinction, let me emphasize right at the outset, that the present paper will focus on the second aspect of directionality, namely, the semantic directionality in the structure of metaphors. Two questions will be addressed. 1. What are the constraints on directionality in non-poetic metaphors (i.e., conventional metaphors, and/or artificial metaphors invented specifically for psychological tests). In section 1 I will introduce two major generalizations pertaining to directionality in non-poetic metaphors.

2. The second question (to be discussed in the second and main section of this paper) pertains to poetic metaphors: do poetic metaphors conform to the above generalizations? The importance of this issue is not restricted merely to finding out whether the applicability of the generalization (to be introduced in section 1) can be extended to poetic metaphors. In fact, it is a rather major issue with respect to both a theory of poetic language, and a more general cognitive theory of metaphor. Note, that a widely held view within literary studies (notably the Russian Formalists and their followers) maintain that poetic language (which includes poetic metaphors) deviates from the rules underlying standard, non-poetic language. These deviations in turn create the intricacies and complexities of understanding poetic language. Note, however, that these deviations themselves must somehow be constrained, or

regulated, otherwise they would result in practically impossible-to-interpret utterances. To paraphrase the famous slogan of Russian Formalism we may argue (following Tzur [1992]) that these deviations reflect an 'organized violence against cognitive processes'. Thus, the "violence" itself (i.e., the rule-breaking) must be «MDNN»'organized' or regulated, in order to ensure the interpretability of the poetic utterance. It follows, in other words, that even the rule-breaking conduct of poetic language is "organized", that is, complies with certain constraints. The major question here relates to those constraints that even poetic language does not violate. Clearly, this general question concerns specific aspects of poetic language, in our case, the issue of directionality in metaphors. In the second section then, I will examine whether and to what extent poetic metaphors conform to the generalizations underlying non-poetic metaphors. The answer to this question will generally be positive (with some modification).

The next question, to be discussed in section 3 is: How can the fact that both poetic and non-poetic metaphors conform to those generalizations be accounted for? The account to be proposed bears on basic general cognitive constraints that apply not only to (poetic and non-poetic metaphors) but to a diversity of perceptual and conceptual phenomena as well.

Section 1: Standard Directionality in Metaphor

Let me begin then by introducing the generalizations regarding directionality in non poetic metaphors, based on findings in linguistic and psychological studies. As mentioned earlier, the latter consist of the analysis of either conventional metaphors and/or artificial metaphors constructed for experimental purposes. The two generalizations presented in these studies appear in [1].

[1]: Generalizations regarding Metaphor Directionality

- A. Whenever the two terms of the metaphor differ in their respective level of abstraction, the direction of mapping is from the concrete to the abstract, and not vice versa.
- B. When the two terms do not differ with respect to the concrete-abstract scale, but do differ in their respective degree of salience relative to the shared (explicit or implied) category, the direction of mapping is from the more salient to the less salient, and not vice versa.

Let us review some of the evidence supporting each of these generalizations.

1. Evidence supporting the claim that the preferred directionality is from the Concrete to the Abstract

1. Evidence from the structure of Conventional Metaphors

The well-known analysis by Lakoff and Johnson (1980) covers a wide range of conventional metaphors used in ordinary language. One of its major findings directly supports [1A], in that the directionality which is more likely to undergo conventionalization in language appears to be that based on the mapping from a more concrete to a more abstract domain, rather than vice versa. In fact, there was virtually not a single instance in which the source domain was more abstract than the target domain. A typical example lies in the conventional metaphor "Love is a travel",

whereby terms from the source domain "travel" are mapped onto the target domain "love." This mapping underlies conventional metaphorical expressions such as "The lovers have reached a crossroad," "Where do we go to from here?"; "Where is all this leading to?" etc'. Typically, the source domain here is more concrete than the target domain. As mentioned, while this direction is typical of mapping in a wide range of conventional metaphors, there are no instances in which the opposite mapping occurs (see note 2).

Another point supporting the above generalization arises from the examples analyzed by Lakoff and Johnson and relates to the few cases in which mapping is bi-directional. An example of such mapping would be the case of "people" and "machines." We often come across (according to Lakoff and Johnson) expressions in which the target domain is "people" and the source domain is "machines" (as in such expressions as "he worked like a machine," "he operated mechanistically," "his engine is nothing like it used to be," "he moves in low gear," etc.). At the same time, there are many expressions in which we find inverted mapping, in metaphorical expressions such as "my computer is ill," "my computer has a virus," etc. In these (albeit limited) cases, bi-directionality is possible because there seems to be no substantial difference in the levels of abstraction in both domains. This implicitly strengthens the generalization in [1A].

II. Evidence from the semantic extension of word meaning

Another kind of evidence for [1A] may be found in the study of semantic change in lexical items. I refer here to the semantic extension of word-meaning. For example, the noun "taste" originally used literally as in "the cake tasted delicious", or "the taste of the cake was delicious" underwent a metaphorical extension covering other meanings, as in: "The whole affair left a bad taste in my mouth". A closer analysis of such extensions show that it is a rather constrained process. Thus, Sweetser (1984) who had analyzed semantic change in verbs of perception in Indo-European languages, concluded that these verbs initially used to a physical-sensory stratum (in the context of their more concrete meanings), and only at a much later stage were the meanings of these verbs extended to convey more abstract meanings. For example, the initial meaning of the verb "to see" was restricted to the physical sense of sight; later, the meaning of the verb acquired a multiplicity of meanings in a variety of Indo-European languages, and today it includes the abstract notion of "to understand" (noted in expressions such as "I see where this notion may lead to). This and other examples indicate that it is not only directional mapping which organizes two domains according to their degrees of abstraction, but the directionality within the process of meaning-extension as well (see note 3).

III. Evidence regarding Linguistic Descriptions of Emotions

Another source of evidence attesting to this directionality rises from a study carried out by Finesilver and Ortony (1987) in which they examine how subjects describe emotions (such as anger, fear, happiness, etc.). One group of subjects was asked to verbally describe their feelings by reconstructing an experience they had had which was associated with a particular emotion. The second group was asked to verbally describe the external behavior typifying the emotional experiences they had undergone.

The main difference between the two groups of subjects lay in the extent to which they used metaphorical language. Thus, when describing a mental emotional state (the

first group), the use of metaphorical language was far greater than in descriptions of external gestures associated with this emotional state (second group). This I take to support the notion that the "basic" or "standard" directionality structure is from abstract to concrete: when asked to describe a relatively abstract domain (a mental state associated with an emotion), there was a clear tendency to use metaphorical language, typically by the use of a relatively concrete source domain (as in: "rage is like a volcano"). By contrast, when asked to describe a relatively concrete domain (i.e. external gestures) subjects presumably felt much less need to use metaphorical language because the experience could be verbally described with relative ease. (see note 4).

These three findings, then, support the generalization in [1A].

Before proceeding any further, however, two methodological points should be made. Firstly, the scale of abstraction as used here, cannot, of course, be used according to "objective" and absolute criteria which always straightforwardly distinguish between concrete and abstract concepts. The term "scale of abstraction" pertains to a "psychological" rather than "ontological" distinction between different levels of abstraction. Notwithstanding the logical or philosophical questions relating to this distinction, it is absolutely clear that from a psychological standpoint there is a broad consensus between a variety of people regarding how concepts are divided into concrete and abstract concepts, and when they are considered to be bordering on each. Secondly, note that the concrete/abstract distinction is not a dichotomy but rather a polar distinction, namely, a matter of degree rather than a clear-cut distinction. They are used here in reference to concepts that are under/over a certain level of concreteness as judged by subjects. Since no straightforward criterion has been proposed in the theories mentioned above which might determine the degree of concreteness of a given metaphorical term, for the purposes of this study I have relied on the intuitive criterion of visual representation. According to this criterion, any concept that has any degree of visual representation in memory will be considered (relatively) concrete, while a concept that has no such visual representation whatsoever will be referred to here as (relatively) abstract. Although the theoretical problems rising from this distinction should in no way be overlooked (see Rosch 1975), almost all the cases cited and analyzed in the present study do not pose a problem with regard to being able to identify them as concrete or abstract. For example, "weight," "bath," and so forth can readily be identified as concrete objects, whereas "love," "fear," "time," and so on will be identified as (relatively) abstract concepts (see also section 2).

1.2 Evidence supporting the claim that the standard directionality is the mapping from the non-salient to the more salient

Let us turn now to evidence supporting our second general generalization in [1B].

This generalization pertains to those cases in which there is no substantial difference between the level of abstraction in both terms of the metaphor, but there is a difference in the degree of salience in both terms of the metaphor. In these instances the general claim is that the standard mapping is from the more salient to the less salient concept. The notion of saliency requires the following clarification. Unlike the case of determining the abstractedness of a given concept, the evaluation of the saliency of a given concept is determined relative to a given "category" which has to be established. For example "a butcher" is a (relatively) salient member of the category "people who perform crude and imprecise work," while a (relatively) non-

salient member of the category - "people who perform their work meticulously and with precision". In order to avoid the problem in determining the relative salience of a given concept in cases where no common category is explicitly given, the analyses introduced in section 2 focuses merely on metaphorical comparisons in which the common category is explicitly mentioned throughout (as e.g., in: "emptiness is like a weight, heavy on the heart,") (see note 5).

The evidence for [1B] rests primarily on recent psychological studies. In general these studies support the general claim that a metaphorical structure conforming to the "standard" directionality, are more "basic" (in a psychological sense) than those which do not conform to it. Let us briefly point out the evidence for that general claim.

In general, when a given metaphorical comparison conforms to the "standard" directionality (as in [1B]) it outranks the opposite direction on various dimensions:

1. The judged similarity between the two concepts. Thus, Tversky (1977) and Ortony (1979: 177) point out that when the source term is of higher salience than the target one, the similarity between the two terms being compared is judged as being greater than when their order is inverted. Participants' preferences.
2. Order preference. Thus, subjects (asked to choose a preferred order) prefer "standard" directionality to its opposite.
3. Appreciation of metaphorical comparisons. Metaphors are appreciated higher in the "standard" directionality than vice versa (see Ortony 1979).
4. Recall. Johnson and Malgady (1980) point out that metaphors obeying "standard" directionality are more effectively remembered.
5. Sentence completion. For example, Verbrugge and McCarrell (1977) note that in samples of completed metaphorical sentences there appears to be a preference for the second member (the metaphorical vehicle, after Richards) as the more salient member relative to the basis of similarity, rather than the first (the tenor).

This evidence suggests that the directionality in question is indeed basic or pertains to the basic cognitive ease of processing, for implied throughout all the evidence, in one way or another, is the fact that this directionality is the most simple and the least complicated to process, and for this reason it is preferred by subjects, is remembered more effectively, etc. (see note 6).

Section 2: Directionality in Poetic Metaphors

Introduction

The generalizations established represent the "basic" or "standard" directionality in that it is either a directionality that underwent linguistic conventionalization in numerous languages, and/or subjects' preferences. As mentioned this "standard directionality" reflects the structural characteristics of non-poetic metaphors, namely, either conventional metaphors or artificial ones constructed for experimental purposes. To date, virtually no linguistic or cognitive psychology studies have dealt with directionality in poetic metaphors (an exception is Lakoff and Turner's 1989 study).

Let us, then, turn to the main question of the present study: Do poetic metaphors also respect the "standard" directionality as do non-poetic metaphors or, do they deviate from this directionality in order to create the intricacies and processing complexities of poetic language, as might be argued by a literary students.

To investigate this matter I chose a corpus of 400 poetic comparisons, i.e., similes selected from four Hebrew poetry corpora. The similes were selected at random, and

they were all "closed" similes (i.e., similes containing an explicit mention of the ground, of the form: "a is like b in the sense of c"), in order to avoid biasing the analysis (see note 7 for a fuller explanation).

100 of these 400 similes were selected from the first corpus, consisting of poems published during the period known as the 'revival' of Hebrew poetry by the following major poets: Chaim Nakhman Bialik, Ya'akov Steinberg, Saul Tschernikhovsky, and Zalman Shneor. The second corpus represents the "Modernist" generation of Hebrew poets, and includes poetry by Avraham Shlonsky, Nathan Alterman, Leah Goldberg, and Alexander Penn. The next 100 similes were drawn from poetry written by those traditionally known as the "State era" poets - Nathan Zach, Yehuda Amichai, David Avidan, and Uri Bernstein. The last 100 similes were selected from Hebrew poetry published during the 1980s, by the following poets: Yonah Vollach, Dalia Rabikowitz, Yehuda Amichai, and Yair Horowitz.

The rationale behind the present analysis

Let me briefly explain the rationale underlying this analysis, which is admittedly highly irregular in studies of literary theory. How can such a methodology be justified, whereby a given poetic corpus is taken out of its historical context and regarded as representative of any poetic corpus? It goes without saying that the selected corpus is not considered to be automatically and totally representative of all poetic metaphors including those which were not yet written. However, several factors appear to be characteristic of the corpus analyzed, enabling us to extend the validity of conclusions drawn from them regarding the nature of the "poetic metaphor" far beyond the 400 cases comprising our sample. Let me mention two of these.

1. The said corpus comprises similes taken from 16 different poetic corpora, each 4 representing a different stage in the history of Hebrew poetry. The similes were thus selected entirely at random from poetry written by several prominent poets, whose individual poetry is markedly different from that of the other poets belonging to the same 'generation' of poets. Further, the metaphors for this investigation, as already mentioned, were selected entirely at random; no more were drawn from any one particular poem, poet, or group of poems, than from any of the others, and there was no tendentiousness whatsoever. It is fair thus to assume that the structural pattern found to emerge in this analysis should not be attributed to contextual factors, such as the particular poem from which they the similes excerpted, the individual poet who composed them, nor the particular "generation" or "school of poets" this poet may be ascribed to, and so on. Needless to say, neither is there any reason to assume that the fact that the said similes were originally written in Hebrew affected their directionality in any way. It is worth noting that the above underlying considerations have motivated a series of studies employing the same methodology whose goal was to draw generalizations regarding what constitutes a "poetic" figure in general; these are based on a restricted sample (see, for example, Ullman's 1945 study of the poetic Synaesthesia, MacKay 1986' study of poetic personification, and Shen's 1987 study of the poetic oxymoron]).

2. Moreover, these 4 corpora represent not simply four different historical periods in the evolution of Hebrew poetry, but also indicate four periods of which some way stand in direct contradiction to one another as far as their ascribed poetic characteristics are concerned. This results from the fact that each such generation perceives its own poetic principles as a response to, or a reaction against those of the previous generation, and accordingly constructs an alternative poetics (as testified in

the poetic manifesto essays and articles written either by the poets themselves, or by their critics). Thus, it is fair to assume that poetic tendencies allegedly prevailing in a given period will tend to be rejected by inscribers of the following one, which will in turn be rejected by inscribers of the next period, and so on. Thus, the 4 corpora which appear to be antithetical to each other allegedly exploit a large scale of existing options at their disposal from which the poetic metaphor may be structured across particular poetic contexts.

The procedure of analysis «MDNU»

First, all 400 similes were analyzed according to the scale of abstraction. Note that each simile may conform to one of 4 possible structures: 1. From concrete (source term) to abstract (target term), 2. From concrete to concrete, 3. From abstract to concrete, and 4. From abstract to abstract. Note that the salience analysis applies to the first and third of these structures only, in which the similes' two terms were equally abstract (or concrete).

Three "types" of directionality were distinguished for both abstraction and salience scales: 1. Standard Directionality. 2. First Degree Violation Directionality. 3. Second Degree Violation Directionality. Let us discuss these three types with respect to the two relevant scales.

A. Standard Directionality

This type of directionality simply conforms to the generalization drawn in Table 1.

The relevant structures are:

On the abstraction scale: 1. Mapping from concrete to abstract (as in: "emptiness is like a weight, heavy on the heart"), and 2. From concrete to concrete ("the moon there blazes like a kiss of carnage"). Note that neither of these examples violate the requirement according to which the 'source term' cannot be more abstract than the 'target term' (a requirement obtaining directly from the studies presented above, to be further discussed later in the section explaining the outcome of this analysis), and are therefore structures representing standard directionality.

On the salience scale: 1. Mapping from the salient to the non-salient (as in - "a flock of birds leaves a trail like a jet airplane"), and 2. From salient to salient (as in - "the sun blazes like a fire"; here, "sun" and "fire" are both equally salient members of the category of 'fiery things'). The consideration here is that any structure of comparison in which the 'source term' is salient (whether the 'target term' is salient or not), is a standard directionality structure (more detailed arguments along these lines following a variety of psychological studies mentioned in Section 1 of this present study have been noted elsewhere - see Shen 1989).

B. First Degree Violation

The second type of directionality is what might be called "a first degree violation", that is, structures which to some degree deviate from the standard directionality, without, however, totally inverting it. On the abstraction scale it is the structure which maps from abstract to abstract (as in - "worry shudders like fate stumbles," and "these beauteous words were as swift as a dream").

On the salience scale it is the structure which maps from a non-salient to non-salient (as in - "the moon there blazes like a kiss of carnage," "my head will be filled with nonsense like a red pomegranate," "and the airplanes murmur like blood/ to the ears of the sick."

These are considered a first degree violation since on the one hand they do not fully conform to standard directionality, yet at the same time neither do they comprise a complete inversion of the standard order.

C. Second Degree Violation

Here we refer to a structure whose directionality, when compared to the standard directionality, is totally inverted. i.e. "from concrete to abstract" on the scale of abstraction (as in - "the flowers blossom like a dream," or "I who was raised with all your rocks/ knew too that they would break like confession"), and "from non salient to salient" on the scale of salience (as in - "shrapnel scattered/shattered like crystal").

Scoring

In order to measure the abstractness or salience of the concepts analyzed the following scoring method was used:

4 independent judges (students from the Department of Poetics and Comparative Literature, Tel Aviv University) were given a 4-point scale for both abstraction and salience (1 point representing the highest score for abstraction and salience, and 4 points representing the lowest score for these two scales). They were asked to score each concept comprising the 400 similes for abstractness and saliency.

The criteria the judges were required to use were the following:

On the abstraction 4-points scale the criterion of the 'imagery value' of the concept in question, namely, the extent to which one can create a concrete image of it: concepts considered to range from those having high imagery value (scored either 3 or 4 on the abstraction scale) to those having no or poor visual or audial representation (scored either 1 or 2). (see Rosch's 1978 of the notion of "basic level" of abstraction, and the pictorial representation of terms on this level of abstraction).

The criterion for saliency (or a given concept relative to its "category" represented by the simile's ground) was the extent to which the concept in question could be regarded as a prominent (prototypical, important) member of the category represented by the simile's ground. For example, in "the fog scratching its back like a cat" the ground "scratching its back" constitutes a (ad hoc) category (i.e., "things that scratch their backs") of which 'cat' is a (relatively) more salient member than 'fog'. By contrast, in the case of "evening skies stooped like the blowing of a trumpet," the category constructed is: "things that lean" (which is constituted by the ground "stooped"); for such a category neither 'evening skies' nor 'blowing of a trumpet' are viewed as salient members.

For both scales the concepts identified as belonging to the two lower scores (1 or 2) were classified as "concrete" and "non-salient," while those identified as belonging to the two higher degrees (3 or 4) were classified as "abstract" and "salient", respectively. The 4 judges's decisions were found to be reliable according to a reliability test in which their judgments were compared to 60 randomly chosen samples, and showed an extremely high rate of matching among the judges (judgments of abstraction appeared to be more homogeneous [approximately 85%] than judgments of salience [approximately 75%]). Most differences were resolved following a discussion, and agreement was reached in 85%-90% of the cases.

Results

All metaphorical comparisons selected from the corpus were divided according to whether they could be ascribed to one of the three types noted earlier. The results are

as follows (this is a summary of the four historical periods. A more detailed analysis appear in Table 2):

Cases in which the two concepts differ in their levels of abstraction (i.e., one being concrete and the other abstract) constituted 182 of the 400 similes (45.5%).
34 (8.5%) similes display a concrete-abstract structure
148 (37%) similes display an abstract-concrete structure
The 214 similes (4 instances are unclear) show no discrepancy in levels of abstraction:
204 (51%) are concrete-concrete
10 (2.5%) are abstract-abstract

With respect to the salience analysis (pertaining to the 214 similes in which no differences was found between the abstraction level of the two concepts compared) the results were as follows:
79 (37%) nonsalient-salient
88 (41%) nonsalient-salient
31 (15%) salient-nonsalient
16 (7%) salient-nonsalient

Table 2: Overall summary of the two scales (abstraction and salience), and types of directionality (standard order, 1st and 2nd degree violation):

	Scale of Abstraction	Scale of Salience
Standard Directionality	88%	44%
First Degree Violation	2.5%	41%
Second Degree Violation	8.5%	15%

Table 3a: Scale of Abstraction according to Generations of Poets

	Revival	Modernism	1960s	1980s	Mean
Directionality					
A-C	21%	51%	41%	35%	
			37%		
C-C	68%	33%	46%	54%	51%
C-A	7%	12%	10%	5%	8.5%
A-A	4%	3%	1%	3%	2.5%

Table 3b: Scale of Saliency according to Generations of Poets

		Revival	Modernism	1960s	1980s
Direct'				Mean	
NS-S	24%	44.5%	45%	42%	37%
S-S	10%	3%		6%	9%
NS-NS	52%	44.5%	35%	30%	41%
S-NS	14%	8%	14%	19%	15%

Analysis of Results

The most significant results are those listed in Tables 2, 3a, and 3b, which represent the overall summary of both scales (abstraction and saliency) regarding standard directionality, its two degrees of violation (Table 2), and the different historical periods examined (Tables 3a and 3b). Let me point out what I consider to be the two most significant results.

1. The corpus under examination revealed an extremely high percentage of cases whose structure maintained standard directionality, and a particularly low percentage of cases bearing second degree (the most extreme) violations of this order. As may be noted in Table 2, 88% of the samples tested revealed an adherence to standard directionality on the abstraction scale, while only 8.5% violated it to the second (most extreme) degree. 44% of the samples tested maintained standard order directionality according to the standard order scale of saliency, while only 15% violated it to the second degree.

2. The second important finding is the discrepancy between the two scales with regard to the first degree violations of standard directionality.

While both scales show agreement on the standard directionality and the second degree of its violation, an important disagreement on these two scales is indicated regarding first degree violation: While (relatively) minimal use has been made of first degree violation in the abstraction (2.5%, as listed in Table 2), extensive use of first degree violation is revealed in the saliency component (41%, as listed in Table 2). In other words, of the four options available for creating complexity (abstract-abstract, concrete-abstract, non-salient-nonsalient, salient-nonsalient), the poetic corpus appears systematically to select but one, non-salient-non-salient, which contains a first degree violation of the scale of saliency. All three of the other possible options are hardly ever used; this applies to each of the periods examined, as listed in Tables 3a and 3b, and to each one of the 16 poetic corpora examined. (see note 8).

To sum up the main findings of this analysis indicate that, contrary to what might be expected by proponents of the view holding that poetic language deviates markedly from the principles regulating non-poetic language, the directionality of poetic metaphors to a large degree preserve the general characteristics of non-poetic metaphors. Thus, although this directionality shows some flexibility with respect to the use of the "non-salient - non-salient" structure, it is, nevertheless, highly constrained as it rules out the other three structural options of marked violation, and, in particular, the two second degree violations of standard directionality,

Section 3: Cognitive constraints on the structure of poetic metaphors: A cognitive account

How do this selective adherence to standard directionality in poetic metaphors can be accounted for? The proposal outlined below is that there are cognitive constraints on the poetic metaphorical comparisons that poets produce. In order to introduce those constraints a more accurate description of the above findings should be drawn. Note, that a careful analysis of the findings reveals that directionality in poetic metaphors conforms to the following principle in [2]:

[2]

The 'source' term (the "vehicle") must

A. be (relatively) concrete, and

B. its saliency must not be lower than that of the 'target' term (the "tenor")

This principle rules out those (indeed rare) cases which belong to the first and second degree violation on the abstraction scale (i.e., those structures which violate [2A] in that their source term is relatively abstract), and the structure belonging to second degree violation on the salience scale (which violates [2B], in that its source term is lower in saliency than its target term).

Note further that this principle reflects the difference, mentioned earlier, between the two scales, in that violating the standard directionality is "easier" for the salience scale than for the abstraction scale.

Having established this principle we may now introduce the cognitive constraint which, arguably, accounts for it. Underlying this principle, so goes the argument, is a more basic cognitive constraint, presented in [3], of which the former is merely a specific manifestation.

[3]

A. Our natural tendency is to transform a "lesser" form into a "better" one, rather than to transform a better form into a lesser one. In other words, a better form will be used as a cognitive reference point (see Rosch 1973) against which a lesser form may be perceived as a variation, but not vice versa.

B. Stimuli regarded as the cognitive point of reference (the 'source' term in a metaphor) must have a minimal degree of perceptual distinctiveness.

Let us first clarify [3A]. Clearly [3A] bears on the idea of "good form," a key term in Gestalt theory. This concept evolved in the framework of «BB□» Gestalt theory which sought to formulate the rules according to which human beings organize certain perceptual stimuli. "Good form" is an easy pattern to identify by way of perception. That is, any stimulus whose form is perceptually "good" (e.g., contains symmetrical parts) is easier to identify than one with a "lesser" form (see Rosch 1973). Although the original use of the term referred to perceptual organization, it can be extended to conceptual organization as well (see Rosch 1973 and Tversky 1977). When applied to the conceptual level, the notion of "good form" is interpreted on the abstraction and salience scales in the following way: a concrete and/or salient concept has "a better form" than a less concrete or less salient one, *ceteris paribus* (see Tversky 1977, Rosch 1973, Reinhart 1984 for various arguments supporting this view).

A major finding of the studies mentioned, has been, that a lesser form may be perceived as a (variant of a) better form, but not the other way around. A square with totally imprecise, lopsided lines (a carelessly drawn square, for instance) will be perceived as (a variation) of a square, yet a right-angled square will never be

considered (a variation) of a lopsided, imprecise square. Another example cited by Rosch (1973) is that subjects will perceive the figure 97 (representing a concept of low conceptual accessibility, that is, of "lesser form") as 100, but will never perceive the figure 100 as 97. Subjects describe an 87 degree angle as "in effect" a 90 degree right angle but not vice versa.

Given these preliminary considerations, we are now in a position to introduce our account for (part of) [2]. Recall that [2] ruled out cases belonging to the second degree violation on the abstraction and salience scales (i.e., the mapping from abstract to concrete, or from non-salient to salient, respectively). Given that the better form is regarded as the (conceptually) salient and relatively concrete form (cf. Rosch [1973], Tversky [1977] and Reinhart [1984]), and given that it is possible to regard a lesser form as a variation of a better form, but not vice versa, the fact that (almost) no second degree violation occurs in poetic similes may be accounted for as follows: Transforming a "good form" (a concrete term, or a salient concept) into a lesser form (that is, into an abstract term or into a non-salient concept) yields a violation of the constraint mentioned in [3A], and therefore such structures are ruled out.

The second component of the general constraint (introduced in [3B]) is responsible for the second phenomenon we found (as reflected in [2A]), that is, the disparity between the scales of abstraction and of salience. Recall that the relevant finding was that while there seems to have been practically no use of second degree violation in the scale of abstraction, there was extensive use of this violation in the scale of salience. Now, applying the general formulation in [3B] to the particular case of metaphors, yields the constraint that the 'source' concept, which supposedly functions as the "reference point" against which the 'target' may be understood, must be (relatively) concrete, i.e., perceptually distinct. Now, clearly the first degree violation on the abstraction scale directly violates that requirement since in that structure the 'source' is rather (relatively) abstract. By contrast, the first degree violation on the salience scale does not violate that requirement, since, in all those cases the 'source' term was (relatively) concrete.

What source of evidence supports the cognitive constraint in [3B]? That is, what sort of evidence exists which supports the claim that violating this constraint results in a (relatively) difficult-to-process metaphor? Let me briefly review two such sources.

I. The first evidence supporting the claim that when the 'source' term is not concrete a metaphor will be particularly difficult to process, may be found in a psychological study that specifically sought to examine this question (see Katz, Paivio and Marschark 1985). From this study it appears that metaphorical sentences tend to be judged as (metaphorically) meaningful if the 'source' term (but not the 'target' term) becomes more concrete, and therefore more readily accessible to a subject's imagination. The rapidity with which judging subjects process metaphors, and remember them, changes in correlation with their ability to create an image of the source domain. These findings lead the authors to conclude that subjects prefer to use a concrete, rather than abstract, 'source' term. This finding also verifies the notion that if the 'source' term (the vehicle in the authors' eyes) is not concrete, the comparison would tend to be an anomaly, that is, it would have no meaning, or else be especially difficult to understand.

II. Additional evidence may be found by closely observing the few cases in which this constraint is violated, that is, among those cases in which the 'source' term represents a (relatively) abstract concept. Those cases, I would argue, are "the marked cases", thus supporting the general constraint which applies to the unmarked case. The general

assumption is that these are anomalous structures, and as such, they are especially difficult to process. And indeed, in some of the cases in point, albeit an extremely small proportion of them, the subsequent simile is particularly difficult to process (as testified by the intuitive questioning of several subjects). One typical case is: "And only a hand caresses the harp/ (Like the last singer, silent as the night,/) Like fear come to terms on the verge of 'unbelievable'" (Alexander Penn), which in an informal test was found particularly difficult to interpret by several subjects.

Yet most of the cases in which such an extreme violation occurs do not remain uninterpreted; interestingly, in these instances the metaphor itself "compensates," as it were, for the difficulty encountered by the reader. The "compensation" in each one of these cases is manifested in the relative ease with which it is possible to create a concrete representation of the abstract concept used in the metaphor, despite its abstractness. In the corpus examined there appeared to be three systematic forms of such "compensation".

i. "Metaphorical concretization" of the abstract term.

One salient form of "compensation" was the metaphorical "concretization" of the abstract term(s). A typical example is the following metaphor: "Loneliness roars from within, like rage caged in his icy pallor." In line with my proposed description, comparing "loneliness" to "rage" would be an anomaly, for the 'source' term ("rage") is abstract, just like the 'target' term ("loneliness"). Penn proposes "compensation" in the form of a "metaphorical concretization" of the 'source' term, so that "rage" is transformed from an abstract concept, by way of comparing it (metaphorically) to a prisoner (or the likes thereof) caged in a cell, with the result that it acquires a degree of concreteness. (In this case "loneliness," the 'target' term, also abstract, undergoes a similar process of "metaphorical concretization" by way of its comparison to a lion.)

ii. Using an abstract concept that has undergone "metaphorical concretization" by way of a conventional metaphor.

A second form of "compensation," not unlike the first, involves the use of a 'source' term that has undergone "metaphorical concretization" by way of a conventional metaphor, which is why it is no longer difficult to visualize. An example is the following metaphor: "The young buds bloom like hope." Here, despite the fact that hope is an abstract concept, the relative ease with which this phrase is processed stems from the fact that "hope" has already been linguistically "metaphorically concretized," and as a result the reader is already familiar with an earlier mapping of "hope as a blossom or shoot" (as manifested in the conventional metaphor "our hopes have borne fruit," "hope was planted in them," etc. In these cases, the usage of a conventional metaphor has made the concretization of the abstract concept possible.

iii. Another typical form of "compensation" occurs when the abstract concept represented in the 'source' domain, despite being abstract, is a relatively simple concept which is readily understood in a conventional fashion. For example, in "The song of the cricket is as barren as death," whereby despite "death" being abstract, it is readily and clearly understood as an "absence of life," and can be visually represented in several ways.

To sum up, then, both the psychological evidence (showing the greater difficulty of processing a metaphor whose 'source' concept is relatively abstract) and the "compensation" strategies discussed above provide some evidence supporting the constraint in [3B] in its application to metaphor as seen in [2A].

Summary and Conclusion

The present paper has focused on the issue of directionality in poetic vs. non-poetic metaphors. Having drawn the major parameters for delineating the "standard directionality" (applied for non-poetic metaphors) the point of interest was whether and to what extent poetic metaphors conform to this "standard directionality". The importance of this question initially stems from the fact that directionality is a central aspect of metaphor structure and comprehension, and therefore a major concern for a theory of poetic language. However, its significance should be seen as stemming from a more basic question pertaining to the relationship between poetic and non-poetic language: At the heart of the matter lies the view widely held by various literary theorists that poetic language (including poetic metaphors) creates deviations in the rules regulating standard, non-poetic language. In fact, it is precisely these deviations (so the argument goes) that create the intricacies and processing complexities typical of poetic language. However, as noted by Russian Formalist Victor Shklovsky, the violation of rules by poetic language is itself rather systematic and constrained. It is precisely this systematic and constrained range of violation which guarantees the interpretability of poetic language, despite its shattering of and deviating on from the norms and rules of non poetic language. Nonetheless while most literary theorists have typically shown more interest in describing the "deviations" of poetic language, they have overlooked the other side of the coin, namely, its systematic and constrained nature. No such serious attempt has been made to establish cognitive constraints to which the structure of both poetic and non-poetic metaphors conform (in fact, similar pitfalls characterize the study of many other aspects of poetic language as well). The present characterization of the directionality of poetic (as well as non-poetic) metaphors, should be viewed as an attempt to draw several initial parameters for establishing a range of constraints which even poetic metaphor (let alone non-poetic ones) supposedly conform to. In particular, it was found that despite the availability of several options of deviation from "standard directionality" (the 4 structures which violate the "standard directionality") poetic metaphors are nonetheless highly selective and behave most conservatively when it comes to using available options: Of the four violation options available, only one violation option is actually used, and not the most dramatic one at that. Thus, while allowing a certain amount of "freedom", it turns out that the cognitive constraints (defined in [3A+B]), by ruling out the selection of the other three options, and, in particular, the 2 most drastic ones, guarantee the interpretability of the poetic metaphor. Put somewhat differently, the cognitive constraints apparently guarantee that the violation of norms and conventions of non-poetic language will not develop wildly beyond control.

END NOTES

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1. The term "metaphor" is used in this paper to refer both to metaphors (in the 'strict' sense), and similes (i.e., metaphorical comparisons). Both types are considered here types of metaphors in that both relate concepts belonging to two conceptual domains (cf. e.g., Ortony 1979; Ortony et al. 1985; Gentner & Clement [1988]; Shen 1992b, *inter alia*). This use of the term "metaphor" as an umbrella for all types involving inter-domain mapping, is not intended to suggest that there are no significant

differences between similes and metaphors exist (see e.g. Glucksberg & Keysar 1990). For the purposes of the present paper, namely, for discussing the issue of directionality, this distinction does not make any difference. Thus, the evidence regarding directionality, which are discussed in the literature, as well as the evidence presented here pertain equally both to similes and metaphors.

2. In fact Lakoff proposes that this finding can be explained by the very function of metaphor: "Metaphor is the basic mechanism by which abstract concepts are understood in terms of more concrete concepts" (Lakoff MS (nd: 26).

3. The following two citations from Sweetser's study should clarify this matter: "...such generalizations about semantic change as we do have (cf. Benveniste 1969, 1971; Stern 1931; Traugott 1974, 1982; Fleischman 1982) suggest very strongly that meaning more often shifts from concrete to abstract than in the opposite direction..." (Sweetser 1984:

18). She goes on to note that "There is, then, a tendency to borrow concepts and vocabulary from the more accessible physical and social world to refer to the less accessible worlds of reasoning, emotion, and conversational structure." (ibid.: 26)

4. The following two citations illustrate the conclusions presented:

"Emotional states...tend to have an elusive, transient quality that is difficult to describe using literal language, although, of course, they can usually be labeled using literal language. Thus, while it might be easy for a person to label an emotional state as, for example, fear, it is difficult to provide a literal description of the quality of some particular experience of fear."

... "Participants provided verbal descriptions of emotional states they had experienced and of actions in which they had engaged as they experienced those states. Results showed that descriptions of emotional states contained more metaphorical language than did descriptions of behaviors... The results also indicated that intense emotions led to greater metaphor use than mild emotions for descriptions of feeling states but not for descriptions of actions associated with emotions." (Fainsilber & Ortony 1987 (p. 241)).

5. It is also mandatory to delineate what is meant by the concept of "salience." In effect, it is being applied here in the broadest possible sense, and contains, thereby, several sub-concepts, such as prototypicality, familiarity, etc. I do not intend to analyze the concept here (this has been done elsewhere, see Shen [1989], and Shen [forthcoming]).

6. All the evidence presented to date has supported the claim that when there is a disparity between the level of abstraction or in the salience of two metaphorical terms, there will be a bias towards a particular kind of directionality. In order to complete the picture and thereby strengthen the relevance of the parameters in question (abstraction and salience) in establishing the primacy of a particular directionality, one could suggest the following generalization, which is not based on any that have preceded it, yet is partially supported by various findings. This generalization states that in those cases in which it is apparent that neither structure is favored, there will be no definite distinction between the level of abstraction nor in the salience of both metaphorical

terms (all conditions being equal, that is, if there are no other major differences that could sway the preference).

a. Elsewhere (Shen 1989) I have pointed out that there are symmetrical metaphors, i.e. metaphors whose inversion has the same meaning as the original. For instance, in the case of "snow is like flour," the most sensible reading will take into account that the common denominator to "snow" and "flour" is the color "white." Exactly the same reading will be performed in reverse, according to an informal test I conducted on a series of similar metaphors. In none of these cases was one order favored over the other. Let it be noted that in this case there is no distinct difference between the two metaphorical terms, neither in their levels of abstraction nor in their relative degree of salience in relation to the category they have in common.

b. Indirect and partial support of this claim stems from the analysis of those metaphors discussed by Lakoff. His analysis indicates that in cases of bi-directional conventional metaphors (for instance, "physical objects are like human beings", "people are animals," and "a river is like an artery"), we may conclude that (1) in these cases there is no difference in the level of abstraction, nor in the degree of salience of the two metaphorical terms; (2) as there is a difference in the degree of salience of the features communicated in each one of the two cases, the metaphor will take on a different meaning when read in each direction (i.e. directionality will still be of consequence in the metaphor). See my discussion of these features in relation to directionality.

7. The choice of closed similes (in contradistinction to "open similes" or metaphors in the strict sense) stemmed from the two following considerations:

i. As mentioned earlier, the main concern in the present context was to examine directionality in the metaphorical phrase with regard to two parameters: abstraction and salience. This means that in examining each metaphorical phrase it was necessary to determine whether or not both metaphorical terms could be categorized as "concrete" or "abstract," "salient" or non salient." Here we are faced with a problem whereby the 'source term' (the "vehicle") has to be recovered through interpretation. So, for instance, in the metaphorical phrase "green thought" the 'source term' (e.g., "plant" to which the thought is compared via the adjective "green") is not explicitly mentioned in the phrase must be reconstructed. In order to avoid subjective interpretations in determining the "source term" I have preferred to use similes in which, unlike metaphors, both terms of the comparisons are explicit and do not rely solely on interpretation.

ii. The preference for "closed" rather than "open" similes derives from the need to determine the degree of salience of a given concept (the second generalization regarding directionality). In order to do so it is required to relate the concepts in question to some "category" relative to which the former is considered salient or non salient. The "ground" in the "closed" simile provides such a category label which is not subjected to any interpretation, unlike the "open" simile.

8. A more specific finding which is of some importance, is the low percentage (6%) of similes reflecting the "salient-salient" structure, a structure which clearly conforms the standard directionality. The simple explanation for this, rather expected finding, is that it violates a basic Gricean maxim - "be informative". The reason for that is that the similes' ground is already known to be a salient feature of the "target term", and therefore, no new information about the target term is conveyed by comparing it to the "source term". For instance, "a most fiery thing" is a salient feature of both 'sun' and of

'fire', so that an image comparing 'sun' to 'fire' does not provide us with any new information as to what the 'sun' is.

As a result, poetic texts (indeed, all texts) clearly make minimal use, if any, of this structure, except in specific contexts (such as, for instance, when it is assumed that the speaker before us is unfamiliar with the concept appearing in the 'target' member).

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