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Abstract

The study of metaphor in psychotherapy is undergoing a 'contextual turn', shifting emphasis from global mechanisms underlying metaphors and therapeutic change to their naturally occurring properties in therapist-patient interaction. While there have been rich qualitative and contextual descriptions of metaphors in psychotherapy, complementary quantitative accounts of metaphor usage patterns over larger amounts of talk have been less forthcoming. This paper reports metaphor usage patterns as associations between key contextual variables which characterize metaphors in a dataset of Chinese psychotherapy talk. 2,893 metaphor vehicle terms from 29.5 hours of talk were coded for SPEAKER, FUNCTION, TARGET, PHASE OF THERAPY, and DYAD. A log-linear analysis revealed significant higher order associations (DYAD*TARGET*FUNCTION*PHASE; DYAD*FUNCTION*PHASE*SPEAKER; TARGET*FUNCTION*SPEAKER), discussed as usage patterns which bear implications for the psychotherapeutic application of metaphor. Limitations and future research directions are discussed.

Keywords: Metaphor, psychotherapy, counseling, log-linear analysis, Chinese context, quantitative methods

Quantitative metaphor usage patterns in Chinese psychotherapy talk

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1. Introduction

Psychotherapy is defined as

> the informed and intentional application of clinical methods and interpersonal stances derived from established psychological principles for the purpose of assisting people to modify their behaviors, cognitions, emotions, and/or other personal characteristics in directions that the participants deem desirable (Norcross 1990:218)

Complex processes like cognitions and emotions can be difficult to describe at face value, so therapists and patients often find themselves relying on figurative ways of expression such as metaphor (McMullen 1996). A patient powerfully communicates his/her feelings about being HIV-positive as "a large dark cloud hanging over me" (Kopp and Craw 1998: 308), while a therapist can use the metaphor of driving a car without petrol to explain anorexia in a more vivid and memorable way (Stott, Mansell, Salkovskis, Lavender, and Cartwright-Hatton 2010). Clinical research on metaphor has tended to focus on its ideal therapeutic functions and potential to trigger patient change. However, the investigation of "naturalistically occurring sequences of metaphor use" (McMullen 1996: 250) in specific therapeutic, linguistic, and/or cultural contexts, has gained considerable traction under what may be called a 'contextual turn' in psychotherapy metaphor research. Qualitative analytical strategies have been preferred in much of this work, raising the question of whether quantitative techniques can also contribute to context-sensitive analyses of metaphor. This paper presents a study of metaphor usage

patterns and their implications in a dataset of Chinese psychotherapy talk using the technique of log-linear analysis. A key objective is to illustrate how quantitative methods can complement typical qualitative articulations of rich but relatively limited examples of metaphors. I begin by reviewing some of these qualitative studies and making the case for the complementary value of quantitative analysis under the 'contextual turn'. Next, I introduce log-linear analysis and how it can be applied to explore metaphor usage patterns in psychotherapy. I then describe my dataset and the contextually grounded processes of metaphor identification, variable selection, and coding. Results and discussion follow, where metaphor usage patterns grounded upon significant inter-variable relationships are interpreted and their implications explained. I conclude by reflecting on limitations and offering a synthesized summary of the findings and recommendations for future research.

2. Psychotherapy, metaphor, and context

Metaphor, the act of describing and potentially thinking about something in terms of something else (Semino 2008), is considered useful to various aspects of psychotherapy. A rich vein of conceptual research describes its therapeutic functions (e.g. relationship building, accessing emotions, introducing new frames of reference, among others) (Cirillo and Crider 1995; Lyddon, Clay, and Sparks 2001), and recommends procedures for working with both therapist- (Blenkiron 2010; Stott *et al.* 2010) and patient-generated metaphors (Kopp and Craw 1998; Sims 2003). Empirical studies have uncovered positive relationships between aspects of metaphor use and outcome such as insight occurrence (Barlow, Pollio, and Fine 1977) and depth of experiencing (Gelo 2008; Hill and Regan 1991), and theoretical models have been proposed to account for the potential mechanisms underlying metaphor and change (Schmitt 2014; Stott *et al.* 2010).

While the value of these functional and applicative approaches is clear, there have been recent calls for a complementary analytic perspective or 'contextual turn' (McMullen 2008; Tay 2013). The main point is that researchers have focused too much on functions and mechanisms, and have overlooked the nature and implications of "naturalistically occurring sequences of metaphor use" (McMullen 1996: 250) in specific therapeutic, linguistic, and/or cultural contexts. This resonates with research in other discourse domains (e.g. education, politics, advertising) where analytical approaches sensitive to the situated qualities of metaphors are likewise being advocated (Low, Todd, Deignan, and Cameron 2010). Although 'bottom-up' approaches of investigating metaphors *in situ* may be limited in their ability to explain therapeutic change, useful insights such as emergent metaphoric themes, metaphor variation across populations, and the interactional 'negotiation' of metaphor between therapist and patient (Ferrara 1994) could be gained. Simply put, to know how to use metaphors better (prescription), one should first know how they are actually used (description).

Qualitatively oriented studies of psychotherapy reflecting this 'contextual turn' have been far more common than quantitative ones. Examples include intensive descriptions of metaphor content and development across sessions (Angus and Korman 2002; Angus and Rennie 1988; Van Parys and Rober 2013), which highlight critical issues such as patients' sense of coherence and the therapeutic relationship. Another important strand is to explore how individual (Rasmussen and Angus 1996) and cultural differences (Dwairy 2009) manifest through metaphors, underlining important issues like inclusivity and diversity. In the linguistics literature, researchers are also inclined towards isolated examples of metaphors and how they throw up interesting questions for metaphor theory (Charteris-Black 2012; Tay 2013). Quantitative approaches are rarer possibly because their complementary potential is obscured by the attractiveness of such particularistic qualities of metaphors. However, since treatment often lasts multiple sessions, many metaphors which seem unremarkable in isolation may

actually coalesce into potentially informative usage patterns invisible to qualitative analysis alone. Capturing these patterns requires a statistical technique which can respect the exploratory spirit of contextually grounded analyses, represent the multi-aspectual nature of metaphorical language, and make sense of relationships between these aspects.

One such technique is log-linear analysis,[1] used in diverse fields like language acquisition (Li 2002), sociology (Stacey, Batstone, Bell, and Murcott 1975), and medicine (Hui, Slemenda, and Johnston 1988). The basic idea is that for a dataset characterized in terms of multiple variables, log-linear analysis uncovers significant associations or 'effects' where data units which assume certain values under certain variable(s) tend to assume corresponding values in other variable(s). A significant association is one where the observed frequency (i.e. the number of data units assuming certain values) deviates far from the expected frequency (i.e. the number of data units expected to assume those values by chance alone). These associations are then interpreted with respect to pertinent theoretical ideas. The lack of need to stipulate (in)dependent variables makes log-linear analysis useful for exploratory data-driven research. However, compared to bivariate Pearson's chi-squared tests, it is more complex and nuanced as higher-order associations[2] involving more than two variables may be identified. This is done through a process of 'backward elimination' – starting from the most complex case where all variables are assumed to be associated, non-significant associations are eliminated in stepwise fashion until a final list of surviving associations necessary and sufficient to describe the relationships in the data is obtained. These collectively comprise the 'best model' and can then be interpreted. Log-linear analysis can be performed on many software packages including SPSS, Stata, and R. Due to space constraints, I recommend Gilbert (1993) and Field (2013) as accessible introductory resources.

How is this useful for studying psychotherapeutic metaphor? Psychotherapy exemplifies a, in Nicaise's (2010: 65) words, "multifactorial communicative act" where each (metaphor) unit is

describable along contextual variables of form, function, and/or setting. Qualitative studies have been successful in focusing on a limited number of these variables and detailing their implications. There are several ways in which log-linear analysis can be complementary. Firstly, it engages larger samples, providing a firmer foundation to make claims about the nature of metaphors in psychotherapy. Secondly, while we can qualitatively elaborate how each contextual factor shapes metaphor use and management, it is difficult to articulate combined effects of factors with qualitative analysis alone. Log-linear analysis states precisely which, and how strongly, factors interact to produce the observed frequencies in the data. Such higher-order associations afford different angles of interpretation which can enrich our understanding of metaphor use.

3. Data and metaphor identification

Psychotherapy sessions with two patients at a Chinese university counseling centre, totaling 29.5 hours of talk, were recorded with informed consent. The first patient was a first-year student who displayed symptoms of Post-traumatic Stress Disorder with a history of sexual abuse. The second patient was a staff member seeking therapy to address a poor relationship with her son and failing to 'save' him from his own psychological issues. She displayed symptoms of Borderline Personality Disorder. Both patients were seen by the same therapist using the Object Relations therapeutic approach (Cashdan 1988), which focuses on how patients view themselves vis-à-vis their internal representations of people and situations.

Metaphors were identified in two phases by two native Mandarin speakers with postgraduate training. In the first phase, the discourse dynamics approach (Cameron and Maslen 2010) was applied to identify metaphor vehicle terms based on contrast and transfer between basic and contextual senses. This approach was chosen over others like the MIP (Metaphor Identification Procedure) (Pragglejaz Group 2007) and MIPVU (Metaphor Identification Procedure VU University Amsterdam) (Steen, Krennmayr, Dorst, and Herrmann 2010) since spontaneous

metaphor production in a context like psychotherapy does not occur exclusively at lexical unit level (Cameron and Maslen 2010: 105). Consider Examples 1 to 3.

1. *现在都能感受到自己心里有好几个洞就是他们射的*

'I can now feel the many holes that are in my heart were shot by them'

2. *我好像给自己宣布了死刑*

'I seem to have sentenced myself to death'

3. *有一些怕的东西，怕的感觉*

'there are some frightening things, frightening feelings'

In Example 1, the underlined expressions *心里* ('in my heart'), *好几个洞* ('many holes'), and *射* ('shot') all involve meaning contrast and transfer between a basic sense and a more abstract contextual sense related to the speaker's emotions. Example 2 is a metaphorical simile where *好像* ('seem to') explicitly signals the metaphorical comparison between the basic sense of a death sentence and the contextual sense of an undesirable emotional state. Example 3 illustrates a caveat for metaphor identification in Mandarin, where lexical compounding is pervasive and there are many examples where individual character meanings contribute to the overall meaning of compounds in ways which seem opaque even to native speakers (Ceccagno and Basciano 2007). In Example 3, the compound *东西*, which means a general 'thing', comprises two characters with respective basic meanings of 'east' and 'west'. Another example is the compound *紧张*, meaning 'anxiety', which has two characters with respective basic meanings

of ‘tightening’ and ‘expanding’. While metaphor (and metonymy) is clearly involved in the derivation of such compound meanings, Mandarin speakers are unlikely to consider the conventional senses of these compounds as involving metaphorical meaning transfer. In addition, the widely used *Xinhua Zidian* (New Chinese Dictionary) lists the conventional meanings of these compounds but not the underlying figurative processes. Such examples are therefore not considered metaphorical.

The next phase involved an analytical decision to filter out metaphor vehicle terms which may present technical problems yet “not be of much relevance in answering the research questions” at hand (Cameron and Maslen 2010: 111). These are the numerous instances of highly conventional metaphors in Mandarin, often very common nouns, verbs, and prepositions, many of which do not seem to serve therapeutic functions and for which no literal alternatives are even possible. This decision is supported by evidence that therapeutic processes such as restructuration of cognitive schemas and problem-solving are associated with use of unconventional rather than conventional metaphors (Gelo and Mergenthaler 2003; Pollio and Barlow 1975). While it is true that highly conventional metaphors may have therapeutic value if explicitly engaged (Witztum, van der Hart, and Friedman 1988), clear examples were absent from the dataset. The Metaphor Analysis in Psychotherapy (MAP) model (Gelo 2008) was applied to filter out conventional metaphors from all metaphor vehicle terms, resulting in a final sample of 2,893. MAP states that novel metaphors involve meanings which are not fixed, require effort to understand, and may be derived from conventional metaphors by ‘extending’, ‘elaboration’, ‘questioning’, ‘combining’, and ‘image formation’. Returning to Example 1 above, *心里* (‘in my heart’) is considered conventional since it has a fixed meaning and does not require any interpretative effort. *好几个洞* (‘many holes’), *射* (‘shot’), and Example 2 would then be novel metaphors.

4. Variables

Log-linear analysis often involves compromising between including more variables and avoiding practical problems with too many. The variables initially planned for this study were TARGET, SOURCE, SPEAKER, PHASE OF THERAPY, FUNCTION, and DYAD. However, the SOURCE variable was discarded when it became apparent during coding that its large number of categories cannot be collapsed into a manageable number without sacrificing meaningfulness. The source of a metaphor is that which is used to describe the subject matter; i.e. 'large dark cloud' in "HIV is a large dark cloud hanging over me". The fact that each metaphor can reflect multiple sources (Kimmel 2012) also violates the criterion that data units cannot fall into more than one category within each variable.[3] The remaining five variables are described below, with further critical discussion in the Limitations section later in the paper.

4.1 Target

The target of a metaphor is its subject matter. In "HIV is a large dark cloud hanging over me", the target is 'HIV'. Therapists (Kopp 1995; Kopp and Eckstein 2004) have condensed the principally infinite number of targets into key "dimensions of the metaphoric structure of individual reality" (Kopp 1995: 104). These are 'self', 'others', 'situation', and 'relations' which combine any of the three (Table 1**Error! Reference source not found.**). Besides aligning with the presently taken Object Relations therapeutic approach, this presents an efficient coding scheme with a manageable number of target categories. The patient is always 'self', so if a therapist uses a metaphor to describe the patient, it is still classified under 'self' instead of 'others'.

[Table 1, about here]

4.2 Speaker

This variable indicates whether the metaphor was uttered by the therapist or patient. There is a clear interest in comparing therapist-generated and patient-generated metaphors in the therapy literature, with some focusing on therapist authorship as a form of intervention (Stott et al. 2010), and others on patient authorship as an indication of participation and agency (Kopp 1995). Metaphor vehicle terms were coded as uttered by either therapist or patient.

4.3 Phase

This variable indicates the phase of therapy in which the metaphor was used. It is significant in view of studies which suggest that evolving patterns of metaphor use may provide insight into patients' corresponding evolution in therapy (Levitt, Korman, and Angus 2000; Angus and Korman 2002). Similar to Pollio and Barlow (1975), the sessions were divided into three equally timed blocks reflecting the initial, middle, and final phases of therapy.

4.4 Function

This variable indicates which of three therapeutically relevant functions the metaphor performs. These functions cover major aspects of metaphor use documented in the psychotherapy literature, as exemplified in Table 2. They distinguish whether metaphors are used as explanatory devices to communicate what is deemed as objective information, as exploratory devices to conceptualize and explore what is deemed as subjective attitudes, beliefs, and/or emotions, or as interpersonal devices to demonstrate therapeutically crucial aspects such as alignment and empathy.

[Table 2, about here]

4.5 Dyad

This variable indicates which of the two therapist-patient dyads the metaphor was used by. It is intended to examine the theoretical notion of metaphor variation across individuals, given the truistic belief that every patient (and therapist) is unique and thus no two dyads can be exactly alike (Wohl 1989). Furthermore, while discussions on individual variation are often limited to metaphor sources (e.g. Kövecses 2005), the present approach could shed light on more complex dimensions involving interactional, functional, and temporal factors. The two patients contrast strongly in terms of gender, age, and life experiences and could thus model maximal variation.

4.6 Distinguishing focus variables from contingency variables

Higher order associations in log-linear analysis are theoretically rewarding but difficult to interpret. 2-way and 3-way associations are quite manageable but anything beyond that starts to boggle the mind. A 4-way association means that any two variables are associated in a way which varies across levels of the third, which in turn varies across levels of the fourth. To contextualize such abstract statistical relationships to one's data and theory, Elliott (1988:123) recommends distinguishing between 'focus' and 'contingency' variables. Focus variables are those "of major theoretical interest" and contingency variables are those that "elaborate the interaction pattern in which the focus variables are involved". SPEAKER, FUNCTION and TARGET are accordingly designated as focus variables and PHASE and DYAD as contingency variables. This is supported by the notion that the first three are more immediately tied to the interactional dynamics of therapy talk and thus shape metaphors most directly, while

the latter two pertain to more abstract levels of context such as time and individual styles. DYAD in particular can be regarded as the most abstract since it is essentially a placeholder for any sociolinguistic variable, as discussed later.

5. Inter-rater reliability

The two raters first met to discuss the discourse dynamics approach and the variables. They then independently identified metaphor vehicle terms from the first session transcript of each patient, using the *Xinhua Zidian* as a guide for basic meanings. Following Cameron and Maslen (2010), they discussed and resolved problematic examples afterwards, sharing notes on inclusion and exclusion decisions. The process was repeated for the remaining transcripts with one round of discussion after every two transcripts.

The subsequent steps of applying MAP and coding also followed this process of independent work and discussion. Since these steps now involve categorical decisions on a fixed number of units, Cohen's Kappa was calculated to measure pre-discussion agreement. Kappa for MAP = 0.729, TARGET=0.73, FUNCTION = 0.636, suggesting a good level of agreement (Altman 1991). No checks were needed for the self-evident PHASE, SPEAKER and DYAD.

6. Results

Table 3 is the five-way contingency table showing the cross-classified frequencies of all 2,893 metaphor vehicle terms under the five variables. Expected frequencies, percentages, and sub-totals are omitted to save space.

[Table 3, about here]

Table 4 displays the aforementioned backward elimination process.[4] The eventual best model comprised of two 4-way associations (D*T*F*Ph, PI*F*Ph*S) and one 3-way association (T*F*S). The likelihood ratio, which indicates the final fit of this model, is $\chi^2(45) = 47.08$, $p = 0.387$.

[Table 4, about here]

7. Discussion

The effects comprising the best model are

4-way: DYAD*TARGET*FUNCTION*PHASE;

4-way: DYAD*FUNCTION*PHASE*SPEAKER;

3-way: TARGET*FUNCTION*SPEAKER.

To make sense of these effects, the strategy of elaboration of chi-squares[5] (Gilbert 1993) is used to examine chi-squared statistics (Cramer's V coefficients and standardized residuals) for focus variables across the different levels of the contingency variables. Accordingly, the following analyses will be presented in sequence: i) SPEAKER*FUNCTION with PHASE as contingency; ii) TARGET*FUNCTION with PHASE as contingency; iii) combining the two analyses with respect to DYAD; and iv) the 3-way TARGET*SPEAKER*FUNCTION association.

Table 5 is the cross-tabulation of FUNCTION and SPEAKER across the levels of PHASE with relevant statistics reported.

[Table 5, about here]

The FUNCTION-SPEAKER association is significant throughout the initial, middle, and final phases, which confirms the general conception that therapists and patients have distinct discourse objectives in psychotherapy (Ferrara 1994). Overall, therapists are more likely to use metaphors for explanatory and interpersonal functions, while patients for exploratory functions. It should be reiterated, however, that categorizations of FUNCTION in discourse invariably involve some degree of overlap and/or subjectivity, although inter-rater reliability is adequate in the present study (Section 5). Examples 4 to 6 illustrate the FUNCTION-SPEAKER association..

4. Patient: *我想他讲这个话，虽然讲可能是狂的点，但是他没有一定的东西，他也不会这么狂* 'I think although what he said was a little crazy, he wouldn't have been crazy without a clear reason'

Therapist: 这*是因为他内心的一些回避导致他很难完整的吸收知识。就是那个水在灌的时候，有些地方可以灌溉到的，没灌溉到。 所以那些知识没有办法滋养到他真正需要的那个部分'* That's because his inner avoidance is preventing him from absorbing knowledge. That is, when the field is irrigated, some places get the water and some don't. So the knowledge is unable to nourish him where he needs it most'

In Example 4, the patient is trying to understand why her son lost his temper and said certain 'crazy' things. The therapist uses a metaphor of an irrigation system, comparing knowledge to water and the son to the crops on the field, to offer an explanation.

5. Therapist: *就是别人干着急的时候，妈妈着急，他一点都不体会孩子的妈妈在着急。他也不意识到他是孩子的父亲* 'So when others are getting worried, when mother is getting worried, he doesn't appreciate this at all. He doesn't recognize that he is the child's father.'

Patient: 那*我觉得他是无血无肉的人。还对他好？* 'So I think he is without blood and flesh. Why should I treat him well?'

Therapist: *无血无肉* 'Without blood and flesh'

In Example 5, the therapist first summarizes what the patient had been saying about her ex-husband, whom she accuses of not showing concern for their son. The patient then goes on to describe the ex-husband as 'without blood and flesh'. The therapist repeats this metaphor verbatim to acknowledge and affirm the description – an interpersonally oriented function which Ferrara (1994:137) calls "ratification".

6. Patient: *有那个怨恨，有那个害怕，还有那种被侵犯的那个感觉，就好像是你在一个角落里面，一个很黑很黑的屋子里面，周围全部都是黑的，没有星星，没有月光，没有什么绿草，还有那个地面都是黑的，那个天上也是黑的* 'There is this resentment, there is this fear, there is a sense of being violated. It's like you are in a corner, in a very dark house. The

surroundings are dark, there are so stars, no moonlight, no green grass. The floor is dark and the sky is dark.'

In Example 6, the patient uses a vivid extended metaphor of a 'dark house' to explore his sense of resentment and fear towards a relative who had sexually abused him. In contrast with explanatory metaphors (Example 4) where the main purpose is to communicate some therapeutically relevant knowledge or concept, exploratory metaphors are used in cases where existing knowledge of the target is deemed inadequate, hence in need of further exploration via metaphor.

We obtain a more nuanced perspective on this overall functional distribution when PHASE enters the analysis. The Cramer's V coefficients reveal that the FUNCTION-SPEAKER association grows from low (0.123) to moderate (0.22) (Cohen, 1988) as therapy progresses from the initial phase to the final phase. If the functional distribution reflects the distinct roles played by therapist and patient, this finding suggests that such a distinction can be sensitive to temporal progression, in that therapists and patients take time to 'settle into' and enact their roles. To gain a clearer understanding of this progression of associative strength, as well as how therapists and patients differ exactly in terms of metaphor functions, we examine the standardized residuals which measure the magnitude of difference within each cell. Firstly, while the therapist is more likely than the patient to use metaphors to display alignment and empathy (i.e. interpersonal function) across all three phases, this difference is far less pronounced in the middle phase. This is where patients display a higher level of engagement towards metaphors initiated by therapists, acknowledging and affirming them just as therapists would. Example 7 is illustrative. The therapist describes forgetting past hurts and regaining confidence as 'returning' and 'taking back' things, and each time the patient enthusiastically affirms and repeats these metaphors.

7. Therapist: *我指的是他偷偷摸摸，这个都要还给他*。'I meant his secretive actions. All these must be returned to him'

Patient: *对。我要还给你。* 'Yes. I want to return these to you'

Therapist: *好*。'Good'

Patient: *我要还*。'I want to return these'

Therapist: *拿回什么？* 'What will you take back?'

Patient: *拿回我的性满足和性能量。拿回我的性吸引力，性自信。* 'Take back my sexual fulfillment and energy. Take back my attractiveness and confidence'

Next, while the patient uses a fair amount of explanatory metaphors at the initial phase to frame and describe issues, this is sharply reversed in the middle and final phases where therapists take over and strengthen their explanatory role, using metaphor to communicate therapeutically relevant information and advice. Example 8 below illustrates the patient assuming the explanatory role in the initial phase, using metaphor to provide background information. Example 4 above illustrates the therapist assuming the explanatory role in the middle phase of therapy, after background information had been presented in the initial phase.. As for using metaphors in exploratory fashion to discuss subjective attitudes and feelings, there is hardly any difference between therapist and patient at the initial phase, but patients become far more likely than therapists to do so in the middle and final phases.

We move on to examine the cross tabulation of FUNCTION and TARGET across the levels of PHASE in Table 6.

[Table 6, about here]

The FUNCTION-TARGET association reveals the interesting insight that metaphors which perform certain functions also tend to be about certain targets. Similar to the FUNCTION-SPEAKER association, this relationship grows stronger (from Cramer's V=0.126 to Cramer's V=0.211) as therapy progresses, again underlining the gradual emergence of metaphor usage patterns. Metaphors for alignment and empathy (interpersonal function) are far more likely to be about the patient's self and relevant others, rather than the therapeutic situation, i.e. people rather than events and circumstances. Explanatory and exploratory metaphors, on the other hand, are more evenly distributed across different target topics. Examples 4 to 6 above are again illustrative. Examples 4 and 6 are about situations, and are respectively explanatory and exploratory. Example 5, which is about the patient's ex-husband, instead performs an interpersonal function. Overall, these findings affirm the underexplored influence of the contextual variable of time, and point towards the need for more nuanced discussion of metaphors according to both content and function.

Both associations discussed so far vary further between the two different patients, as evidenced by the DYAD variable in the 4-way effects. As previously mentioned, such variables allow individual metaphor variation to be studied as more complex interplays between interactional, functional, and temporal dimensions. This difference could be a matter of quantity (i.e. both patients exhibit the same patterns but one is much more pronounced than the other) or quality (i.e. both patients exhibit opposite patterns and trends). Since the DYAD variable is presently represented by only two individuals, it may not be worthwhile to elaborate how these two specific individuals differ.[6] The significance of the DYAD variable will instead be discussed in light of its absence from our next and final 3-way association.

The final effect is the 3-way association between TARGET, SPEAKER, and FUNCTION. Since the SPEAKER-FUNCTION association was earlier investigated with PHASE as the contingency variable, we will continue to explore it, this time with TARGET as the

contingency variable (Table 7). Examining the same focus variables using different contingency variables provides analytical richness and consistency (Elliott 1988).

[Table 7, about here]

The key insight is that the previously discussed FUNCTION-SPEAKER association holds when metaphors describe events and circumstances, but becomes non-significant when describing people (self and others). This levelling out of what is otherwise a clear functional distinction suggests that when it comes to describing the patient and other relevant people, the therapist is less likely to exert any supposed interpretative expertise and more likely to allow the patient to do so. In other words, patients possess a higher degree of agency to offer explanations, draw conclusions, and even take on the role of affirming therapist metaphors when talking about themselves and relevant others. Examples 8 to 10 illustrate this.

> 8. Patient: *我现在等于是一个人拉两头牛。那我也拉不动。如果他爸爸能改变的话，那他爸爸也能拉他一下子。那我对来讲要轻松一点。那我想我就是抱着这种期盼。* 'I am currently one person trying to pull two oxen. I can't pull them. If his father can change, he could pull him awhile. That would make things easier. This is what I'm hoping for.

In Example 8, the patient describes her ex-husband and son as oxen to be pulled. Her presumed familiarity with the two men and their issues motivates her use of the metaphor to explain the situation to the therapist, who in such instances tends to be the recipient rather than provider of therapeutically relevant information.

9. Therapist: *我的内心就是柔和……我的内心柔和，他就是源泉。*'My innermost feelings are soft and gentle…it is my wellspring'

Patient: *对，我的内心柔和，他就是源泉。*'Correct, my innermost feelings are soft and gentle…it is my wellspring'

In Example 9, the therapist and the patient are exploring the conceptualization of the latter's innermost feelings as a wellspring, a source of hope and inspiration. The patient, being precisely the target at hand, finds it appropriate to affirm the therapist's description, repeating and thus reinforcing its aptness.

10. Therapist:*所以女儿有能力的时候，所以赶紧干吧！让她赶紧，摧着快马加鞭。 是不是一直像那个赶马车，使劲的甩鞭子，让她继续干，赶紧干？*'So when the daughter is still able to, let her do more work! Whip the galloping horse. Is it like being on a wagon, whipping the horse, and letting her do as much work as possible?'

Client: *对。*'Correct'

Therapist: *你看所以她觉得这就像工具。她就觉得在你眼里面她就是工具。她产生这样的感觉。您可以理解了吗？*'You see, so she thinks that in your eyes, she is just a tool. She has these feelings, can you understand?'

In Example 10, the therapist uses the metaphor of whipping a galloping horse to explore his understanding of the patient's situation. Since the target is the patient's mother, he finds it necessary to check whether his understanding is accurate, and only reverts to the characteristic explanatory use of metaphor in the final turn upon the patient's affirmation that it is.

Comparing the FUNCTION-SPEAKER relationship across the other two TARGET categories of situation and relation, it is clearly stronger in the former (Cramer's V=0.202) than the latter (Cramer's V=0.142). Nevertheless, in both cases the therapist remains more likely to explain and relate, and less likely to explore. Since the difference between the two categories is that 'situation' only involves description of events/circumstances while 'relation' always includes subjective descriptions of the patient's self (i.e. self-to-self, self-to-other, self-to-situation), the findings suggest that it may be easier for therapists and patients to enact their functionally distributed roles when discussing less subjective information.

Lastly, it is also interesting to observe that DYAD is absent from this 3-way association, which means the functional distribution of metaphor across different targets is not significantly different among the patients. As explained earlier, the presence of DYAD in both 4-way associations confirms the theoretical expectation that metaphor usage patterns vary across individuals. However, its absence from the FUNCTION*SPEAKER*TARGET association highlights the important point that certain aspects of metaphor use in psychotherapy remain relatively invariant across individuals, and potentially larger sociolinguistic groups. Finding out which aspects vary and which remain constant is an intriguing prospect for future research.

8. Limitations and critical reflections

Here, I critically reflect on some general limitations of log-linear analysis and specific issues which surface in the present study. Firstly, because there should be at least five times the number of observations as cells in a contingency table (Tabachnick, B. and Fidell 2007), the

number of variables and categories is limited if the sample size cannot be conveniently increased. This was illustrated by the exclusion of the SOURCE variable. Therefore, despite the reality of multiple contextual factors shaping discursive features, there will often be a need to streamline and justify why a particular set of variables is most relevant.

Secondly, cell frequencies should not influence one another. This means that any observation must only fall under one cell, implying the need to avoid variables with poorly defined categories (e.g. SOURCE). This also means that no observation should exert a more than random effect on how others are classified. Opinion is divided over whether the ecological nature of discourse undermines this criterion (Kilgarriff 2001). More specific to metaphor use, the influential notion that metaphorical expressions are often collectively organized around some underlying 'root metaphor' (Gibbs 1994) may also pose problems, although their interdependence may be overstated (Shen and Balaban 1999; Kimmel 2010).

Lastly, frequency-based patterns revealed by log-linear analysis do not entail thematic significance. It therefore complements but cannot replace nuanced qualitative accounts of specific examples. The complementarity between qualification and quantification can of course be realized in different ways. One could pre-determine variables and qualitatively analyze examples afterwards, like in the present study, or conduct qualitative analysis to discern interesting variables before factoring them into log-linear analysis.

Several variables in this study should also be critically reflected upon. PHASE was operationalized here and elsewhere as equally timed blocks for analytic consistency and convenience. However, some linguists may find it arbitrary to partition spontaneous communication this way, while some psychotherapists suggest that therapeutic processes are non-linear and thus not a straightforward function of time (Schiepek, Tominschek, and Heinzel 2014). FUNCTION was treated as a categorical variable, but some metaphors may be multifunctional such that coding decisions are at times less than straightforward. DYAD was

limited to just two therapist-patient pairs so the findings cannot be readily generalized to other contexts. These issues underline the strong need to explain and justify design choices, and conduct consistency measures such as Kappa in applied metaphor research.

9. Conclusion and future directions

This paper aimed to illustrate a quantitatively oriented approach to the 'contextual turn' in metaphor research in the domain of psychotherapy, where the focus is to articulate actual metaphor usage patterns and highlight implications rather than mechanisms governing metaphor and change. I now provide a synthesized interpretation of the patterns found, and outline some implications and future research directions.

Firstly, the passage of time was found to exert significant effects on different aspects of metaphor use. We saw that the functional distribution of metaphor between therapist and patient, as reflected in the FUNCTION-SPEAKER association, grew stronger as the therapy sessions progressed. This suggests that therapists and patients need time to 'settle into' their institutionalized discursive roles when using metaphor. A similar observation was made for the FUNCTION-TARGET association, which lends support to the overall suggestion that metaphor usage patterns tend to strengthen over time. Future research on metaphor use and management should pay more attention to temporal factors, given the inherent interest in how interventions and their outcomes evolve over time.

Secondly, this study has shed more light on the common belief in a functional distribution between therapist and patient as regards metaphor use. As mentioned above, the FUNCTION-SPEAKER association is sensitive to time such that the therapist is not always the one performing the role of an expert 'explainer' and 'relater', and the patient an 'explorer'. Furthermore, we also saw how the association was linked to the targets of the metaphors, in

that therapists and patients were more likely to perform these roles when the discussion centred on events rather than people. Metaphor-related interventions which cast therapists as information providers who guide patients to 'explore' their metaphors (Kopp and Craw 1998; Stott et al. 2010) might therefore take temporal and topical factors into account, and pay more attention to circumstances under which such idealized discourse roles may vary.

Thirdly, while the four target categories of self, others, situation and relations were originally simply proposed as different "dimensions of the metaphoric structure of individual reality" (Kopp 1995: 104), this study suggests that they differ not only in terms of content, but co-occur with different functions and therapeutic stances. Metaphors which describe patients and other relevant people tend to co-occur with demonstrations of alignment and empathy, and are more likely to be used in contexts where therapists and patients are not performing their respective conventional roles of 'explainer' and 'explorer'. These conventional roles are instead more likely to be enacted when metaphors are used to describe events and circumstances which may require more technical expertise and less subjective construal.

Lastly, while the DYAD variable was not analyzed in detail, there are implications to the fact that it appears in most, but not all, effects in the best model. It suggests that while most metaphor usage patterns vary across the patients as predicted by theory (e.g. Kövecses 2005), certain dynamics of metaphor use may well be invariant. One such dynamic is the association between TARGET, SPEAKER, and FUNCTION, which was interpreted as the sensitivity of the functional distribution between therapist and patient to different targets. The present approach could be replicated to examine the effect of other types of sociolinguistic variables on metaphor use, and this could be useful in the context of discussing 'common factors' (Frank 1971), i.e. those aspects of therapy which are paradigm specific, and those which apply across all therapeutic paradigms and situations.

Target category	**Example**
Self Metaphors for one's image of self	*我是射箭的人* 'I am the bowman'
Others Metaphors for one's image of others	*他才是真正的被告* 'He is the real defendant'
Situation Metaphors for one's image of situations (e.g. event/circumstance)	*把那些肮脏的东西还给你* 'Return those dirty things to you'
Relations Metaphors for one's understanding of the relationship between self-and-self, self-and-other, and self-and-situation	*我在用锤子锤自己* 'I am using a hammer to hammer myself (self-and-self)' *我把他从我的世界中赶出去* 'I chased him out of my world (self-and-other)' *我没有力量拉勾射箭* 'I don't have the strength to pull the bow and shoot the arrow (self-and-situation)'

Table 1 Target categories

Function	**Example**
Explaining information and concepts (Blenkiron, 2010; Stott et al., 2010)	*凡是你在他们身上看到的，其实都是你自己的东西，就跟镜子是一样的* 'Whatever you see on them is actually also yours, just like a mirror'
Exploring attitudes, beliefs and emotions (Lyddon et al., 2001)	*它好像在我脸上烙了个印* 'It felt like it branded a mark on my face'
Displaying interpersonal alignment, empathy etc (Ferrara, 1994)	P:*我要拿回我的男性的信心* T:*对,拿回我自己男性的信心* 'P: I want to take back my confidence as a man T: Right, take back my confidence as a man' (note: while the client's initial metaphor is an instance of exploring attitudes, beliefs, and emotions, the therapist's echoing response is a display of interpersonal alignment)

Table 2 Key therapeutic functions of metaphor

Dyad	Phase	Function			Target			
					Situation	Others	Self	Relations
1	1	Explain	**Speaker**	Patient	15	6	7	10
				Therapist	73	7	11	16
		Explore	**Speaker**	Patient	68	6	8	37
				Therapist	95	8	8	67
		Interpersonal	**Speaker**	Patient	8	7	6	6
				Therapist	18	6	8	15
	2	Explain	**Speaker**	Patient	64	6	7	15
				Therapist	79	5	6	28
		Explore	**Speaker**	Patient	74	8	6	29
				Therapist	80	6	8	30
		Interpersonal	**Speaker**	Patient	8	6	7	8
				Therapist	33	7	7	16
	3	Explain	**Speaker**	Patient	34	15	6	15
				Therapist	88	28	6	31
		Explore	**Speaker**	Patient	75	6	6	32
				Therapist	78	7	6	27
		Interpersonal	**Speaker**	Patient	7	6	6	8
				Therapist	16	8	6	7
2	1	Explain	**Speaker**	Patient	69	6	6	30
				Therapist	35	8	6	19
		Explore	**Speaker**	Patient	21	6	6	5
				Therapist	18	6	6	9
		Interpersonal	**Speaker**	Patient	6	3	5	7
				Therapist	32	6	7	25
	2	Explain	**Speaker**	Patient	19	8	6	17
				Therapist	90	9	7	45
		Explore	**Speaker**	Patient	127	7	8	58
				Therapist	85	7	7	29
		Interpersonal	**Speaker**	Patient	15	6	5	22
				Therapist	17	7	7	8
	3	Explain	**Speaker**	Patient	8	6	6	7
				Therapist	17	6	7	7
		Explore	**Speaker**	Patient	72	4	5	53
				Therapist	43	4	7	21
		Interpersonal	**Speaker**	Patient	6	6	7	5
				Therapist	26	6	8	10

Table 3 5-way contingency table

Step			Effects	χ^2	df	Sig.
0	Generating Class		D*T*F*Ph*S	.000	0	.
	Deleted Effect	1	D*T*F*Ph*S	18.110	12	.112
1	Generating Class		D*T*F*Ph, D*T*F*S, D*T*Ph*S, D*F*Ph*S, T*F*Ph*S	18.110	12	.112
	Deleted Effect	1	D*T*F*Ph	33.425	12	.001
		2	D*T*F*S	.582	6	.997
		3	D*T*Ph*S	7.763	6	.256
		4	D*F*Ph*S	53.598	4	.000
		5	T*F*Ph*S	11.099	12	.520
2	Generating Class		D*T*F*Ph, D*T*Ph*S, D*F*Ph*S, T*F*Ph*S	18.691	18	.411
	Deleted Effect	1	D*T*F*Ph	33.519	12	.001
		2	D*T*Ph*S	7.651	6	.265
		3	D*F*Ph*S	54.064	4	.000
		4	T*F*Ph*S	10.998	12	.529
3	Generating Class		D*T*F*Ph, D*T*Ph*S, D*F*Ph*S, T*F*S	29.689	30	.482
	Deleted Effect	1	D*T*F*Ph	35.761	12	.000
		2	D*T*Ph*S	6.099	6	.412
		3	D*F*Ph*S	58.090	4	.000
		4	T*F*S	16.422	6	.012
4	Generating Class		D*T*F*Ph, D*F*Ph*S, T*F*S, D*T*S, T*Ph*S	35.789	36	.479
	Deleted Effect	1	D*T*F*Ph	35.775	12	.000
		2	D*F*Ph*S	62.124	4	.000
		3	T*F*S	14.999	6	.020
		4	D*T*S	4.012	3	.260
		5	T*Ph*S	5.065	6	.536
5	Generating Class		D*T*F*Ph, D*F*Ph*S, T*F*S, D*T*S	40.854	42	.521
	Deleted Effect	1	D*T*F*Ph	35.572	12	.000
		2	D*F*Ph*S	61.023	4	.000
		3	T*F*S	14.387	6	.026
		4	D*T*S	4.148	3	.246
6	Generating Class		D*T*F*Ph, D*F*Ph*S, T*F*S	45.002	45	.472
	Deleted Effect	1	D*T*F*Ph	36.975	12	.000
		2	D*F*Ph*S	60.990	4	.000
		3	T*F*S	14.616	6	.023
7	Generating Class		D*T*F*Ph, D*F*Ph*S, T*F*S	45.002	45	.472
Likelihood ratio for final model: $\chi^2(45) = 47.08$, $p = .387$						

D=Dyad, T=Target, F=Function, Ph=Phase, S=Speaker

Table 4 Step summary of backward elimination

PHASE	FUNCTION		SPEAKER		Statistics
			Patient	Therapist	
1	Explain	Count	149 (132.9)	175 (191.1)	$\chi^2(2, N = 863) = 13.15$
		Std. Residual	1.4	-1.2	p =0.001
	Explore	Count	157 (153.4)	217 (220.6)	Cramer's V=0.123
		Std. Residual	0.3	-0.2	
	Interpersonal	Count	48 (67.7)	117 (97.3)	
		Std. Residual	-2.4*	2.0*	
2	Explain	Count	142 (190.1)	269 (220.9)	$\chi^2(2, N = 1159) = 43.88$
		Std. Residual	-3.5**	3.2**	p <0.001
	Explore	Count	317 (263.1)	252 (305.9)	Cramer's V=0.195
		Std. Residual	3.3**	-3.1**	
	Interpersonal	Count	77 (82.8)	102 (96.2)	
		Std. Residual	-0.6	0.6	
3	Explain	Count	97 (132.1)	190 (154.9)	$\chi^2(2, N = 871) = 64.63$
		Std. Residual	-3.1**	2.8**	p <0.001
	Explore	Count	253 (205.3)	193 (240.7)	Cramer's V=0.22
		Std. Residual	3.3**	-3.1**	
	Interpersonal	Count	51 (63.5)	87 (74.5)	
		Std. Residual	-1.6	1.5	

*=significant at p<0.05, **=significant at p<0.01

Table 5 Cross-tabulation of FUNCTION and SPEAKER across levels of PHASE

PHASE	FUNCTION		TARGET				Statistics
			Situation	Others	Self	Relations	
1	Explain	Count	192 (171.9)	27 (28.2)	30 (31.5)	75 (92.4)	$\chi^2(6, N = 863) =$
		Std. Residual	1.5	-0.2	-0.3	-1.8	27.59
							p <0.001
	Explore	Count	202 (198.5)	26 (32.5)	28 (36.4)	118 (106.6)	Cramer's V=0.126
		Std. Residual	0.2	-1.1	-1.4	1.1	
	Interpersonal	Count	64 (87.6)	22 (14.3)	26 (16.1)	53 (47.0)	
		Std. Residual	-2.5**	2.0*	2.5**	0.9	
2	Explain	Count	252 (245.0)	28 (29.1)	26 (28.7)	105 (108.2)	$\chi^2(6, N = 1159) =$
		Std. Residual	0.4	-0.2	-0.5	-0.3	49.69
							p <0.001
	Explore	Count	366 (339.2)	28 (40.3)	29 (39.8)	146 (149.7)	Cramer's V=0.146
		Std. Residual	1.5	-1.9	-1.7	-0.3	
	Interpersonal	Count	73 (106.7)	26 (12.7)	27 (12.5)	54 (47.1)	
		Std. Residual	-3.3**	3.7**	3.8**	1.0	
3	Explain	Count	147 (154.9)	55 (33.6)	25 (25.0)	60(73.5)	$\chi^2(6, N = 871) =$
		Std. Residual	-0.6	3.7**	0.0	-1.6	77.55
							p <0.001
	Explore	Count	268 (240.7)	21 (52.2)	24 (38.9)	133(114.2)	Cramer's V=0.211
		Std. Residual	1.8	-4.3**	-2.4*	1.8	
	Interpersonal	Count	55 (74.5)	26 (16.2)	27 (12.0)	30 (35.3)	
		Std. Residual	-2.3*	2.4*	4.3**	-0.9	

*=significant at p<0.05, **=significant at p<0.01

Table 6 Cross-tabulation of TARGET and FUNCTION across levels of PHASE

TARGET	FUNCTION		SPEAKER		Statistics
			Patient	Therapist	
Situation	Explain	Count	209 (254.1)	382 (336.9)	$\chi^2(2, N = 1619) = 65.92$
		Std. Residual	-2.8**	2.5*	p <0.001
	Explore	Count	437 (359.4)	399 (476.6)	Cramer's V=0.202
		Std. Residual	4.1**	-3.6**	
	Interpersonal	Count	50 (82.5)	142 (109.5)	
		Std. Residual	-3.6**	3.1**	
Others	Explain	Count	47 (50.1)	63 (59.9)	$\chi^2(2, N = 259) = 0.791$
		Std. Residual	-0.4	0.4	p =0.67 (ns)
	Explore	Count	37 (34.2)	38 (40.8)	Cramer's V=0.055
		Std. Residual	0.5	-0.4	
	Interpersonal	Count	34 (33.7)	40 (40.3)	
		Std. Residual	0.0	0.0	
Self	Explain	Count	38 (38.0)	43(43.0)	$\chi^2(2, N = 241) = 0.107$
		Std. Residual	0.0	0.0	p =0.95 (ns)
	Explore	Count	39 (38.0)	42 (43.0)	Cramer's V=0.021
		Std. Residual	0.2	-0.2	
	Interpersonal	Count	36 (37.0)	43 (42.0)	
		Std. Residual	-0.2	0.2	
Relations	Explain	Count	94 (112.9)	146 (127.1)	$\chi^2(2, N = 774) = 64.63$
		Std. Residual	-1.8	1.7	p <0.001
	Explore	Count	214 (186.7)	183 (210.3)	Cramer's V=0.142
		Std. Residual	2.0*	-1.9	
	Interpersonal	Count	56 (64.4)	81 (72.6)	
		Std. Residual	-1.1	1.0	

*=significant at p<0.05, **=significant at p<0.01

Table 7 Cross-tabulation of FUNCTION and SPEAKER across levels of TARGET

Notes:

[1] Logistic regression is a closely related method which also examines relationships between multiple categorical variables. However, logistic regression is used when there is a clear hypothesis about which variables are independent and which are dependent, whereas log-linear analysis does not require such a distinction.

[2] Associations involving more than two variables are also called 'interactions'. This paper will consistently use 'associations' regardless of the number of variables involved.

[3] A more general methodological point about combining deduction and induction in metaphor discourse analysis can be made here, i.e., increasing familiarity with the data may warrant revision of predetermined analytical categories.

[4] The process starts at Step 0 by tentatively deleting the highest order association (the 5-way association between all five variables), and assessing the fit between the data and remaining effects. The non-significant statistic of 0.112 (at the 0.05 level of significance) suggests that deleting the 5-way association does not significantly affect the fit between the observed frequencies and the remaining effects. This means it can be permanently deleted, and we move on to Step 1, where the next highest ordered associations (i.e. the four 4-way associations) are considered. With each step, the effect with the largest significance level, or the lowest impact on overall fit, is deleted provided it is above the threshold of 0.05. The process repeats until no further effects can be deleted, at which point the surviving effects constitute the best model.

[5] Other useful strategies include odds-ratios (Page 1977) and parameter estimates (Elliott 1988).

[6] If representative samples are obtained under DYAD or a similar sociolinguistic variable like culture, language, or therapeutic paradigm in future research, a full interpretation would certainly be warranted.

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