Metaphorical Constructions in Modern Economic Discourse: A Large Scale Corpus Analysis

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The idiosyncratic nature of lexicalization patterns is fact of all languages and raises interesting questions concerning speakers' linguistic knowledge. Our study focuses on one aspect of idiomaticity –how metaphors are revealed in English talk and text. Metaphorical patterns can be identified, to some extent, by probing native speakers about their own language use. But this technique often fails because speakers have inconsistent explanations of what they can and do say. Recently, corpus linguists have begun to use corpus frequency statistics to investigate the relationship between conceptual metaphor, grammatical constructions, and the set phraseology of topical discourse (Demmen et al., 2015; Koller et. al., 2008; Lederer, 2016). The conceptual metaphors we use to understand and talk about abstract ideas like the economy and a myriad of other 'target domains' –education, career, life, and love –are primarily unconscious (Lakoff & Johnson 1980); therefore, the best way to probe nuanced patterns of how these abstract ideas are lexicalized, or encoded in words and phrases, is to look at sizable collections of data.

Economic language, specifically, is based on a complex conceptual model involving several robust metaphors including MONEY IS LIQUID, THE ECONOMY IS A SHIP; THE ECONOMY IS A WEATHER EVENT; and the ECONOMY IS AN AILING BODY (Boers and Demecheleer, 1997; Shenker-Osorio, 2012). These metaphors work together to produce a set of interrelated metaphorical tokens. Source triggers combine with target triggers in close proximity, comprising set phraseology typical of economic discourse. When it comes to metaphorical collocation patterns, related terms show unequal frequency patterns. For example, when discussing business and finance, speakers use *cash flow* more frequently than *cash stream,* but when discussing investment, speakers use *income stream* and not *income flow* (Lederer, 2016, p. 545). *Flow* and *stream* mean the same thing, more or less, but they don't equally participate in economic jargon. Frequency differentials tell us something about the interaction between the grammar of language and our conceptual system (Musolff, 2006). In this specific case, they illustrate interesting properties of how money is metaphorically understood as liquid –cash flows around the world relatively unimpeded. Income, however, is assumed to exhibit unidirectional movement –from investment or job to investor or worker. Thus, the movement of income is more like a stream –flowing from origin to destination in one direction only.

Drawing on patterns like these, we use seed words like *financial* and *storm* (identified as frequent metaphor triggers in *The Economist* magazine) to probe fixed and semi-fixed economic phraseology. Using the Corpus of Contemporary American English (Davies, 2008-), our large-scale examination includes 12 frequent metaphorical target triggers (*bank, invest, market, firm, debt, finance, rate, price, capital, growth, economy, money*) combined with 84 source triggers (including lemmas like *sail, storm, channel, conditions, freeze, cloudy, turbulent, ailing*, and *health*) to produce 1008 pairings, i.e. *investment freeze* and *turbulent market*. Corpus methodology not only allows for a close examination of how conceptual metaphors are encoded in lexis, but also an intimate examination of how conceptual metaphors populate syntactic constructions (cf. Sullivan 2009; 2013). Thus, each lexical combination was also evaluated for its rate of occurrence in five syntactic constructions: NP-of-NP (*captain of finance*; *wave of capital*), A-NP

(*economic headwinds*; *ailing economy*), N-N compound (*debt bubble*; *bubble market*) V-NP (*steer the economy*), and X is Y (*the economy is a sinking ship*).

All 2,016 ordered combinations (e.g. *invest* flood*/ flood* invest**) were searched thoroughly by allowing for up to five intervening wild cards (i.e. ***flood*** *of American* ***investment***) in order to catch most, if not all, instances of relevant tokens (totaling approximately 13,000 manual searches in COCA). Metaphorical tokens were identified by hand and added to our database –coded for metaphor, specific trigger, and syntactic construction. Coding for metaphorical use followed the MIPVU method, a commonly accepted standard for metaphor identification (Pragglejaz Group 2007; Steen et. al. 2010). This method, applied to all searched collocations, involves 1) reading each concordance line corresponding to collocation searches, 2) establishing the contextual meaning of the collocation in question, and 3) marking the phrase as metaphorical when it is not used to signal a more basic, literal referent. For example, a *floating market* would not be collected as a metaphorical phrase when it references a farmers market in Southeast Asia built on floating platforms; however, a *floating market*, used to reference a numerical index of a particular economic market, would be marked as metaphorical.

Our findings from COCA show that asymmetries in source-target pairings abound in metaphorical economic phraseology. Acknowledging metaphorical mappings are more constrained by autonomous target domains, Sullivan (2013) hypothesizes a preference for target-domain language to populate semantically more autonomous syntactic positions in modifier-noun constructions, predicting that source and target triggers should align with predicate-specifying and argument-specifying syntactic positions, in that order. Through detailed type and token counts, our results confirm that source domains function as predicational material used to structure the target domain, explained by asymmetrical conceptual dependencies built into the syntax of simple constructions (cf. Dancyngier & Sweetser 2014; Langacker 1991). Given a lexeme's origin -source or target- we can predict syntactic alignment when used in metaphorical phraseology, *market climate* is metaphorical, *climate market* is not. Exceptions to these strong tendencies are explained through genre-specific lexicalization processes in which predicational terms like *bubble* (*market bubble*) establish themselves as domain modifiers (*bubble market*) in economic jargon.

In addition to reporting syntactic patterns of metaphor instantiation, we present findings on three other parameters of lexicalization. One way to judge or measure the lexicalization patterns of conceptual metaphors is to consider conventionality as a scale of idiomaticity (Gibbs 1984). Frequency statistics can be seen as a proxy for conventionalization. On one end, highly frequent collocations of set source and target triggers occur as common fixed or semi-fixed phrases; on the other end, more creative and novel pairings will be less frequent in corpus data, and, thus, not considered conventionalized, metaphorical jargon. For example, *economic recovery*, *economic conditions*, *market conditions*, *economic climate*, and *financial health*, together produce over 3,000 tokens in our 8506 token sample; whereas others pairings, with similar meanings like *economic sickness* or *economy forecast*, occur only once each.

We also present results from a second line of investigation examining distributional coverage: which source triggers are the most permissive in their ability to co-occur with target triggers and vice-versa? Borrowing from Hausmann (2007), we refer to this measure as 'metaphorical combinability' and report measurements for each trigger in the sample. We explore factors that might contribute to the high combinability scores for certain source triggers like *flow**, *freeze**, and *recover**.* Combinability seems to correlate with a lemma's rate of lexical variation, base rate frequency in economic discourse, and

keyness score –a lemma's relative frequency in economic discourse compared to overall use in English (Cheng 2012; Ahmad 2005).

Finally, we investigate unequal frequencies in specific source and target pairings. We explore why there is a token frequency difference between sequences of the same triggers when both sequences can be used metaphorically. For example, as a domain-modifier construction (A-N) there are 270 occurrences of *financial health* but only two instances of the predicate-modifier construction, *healthy finances*. Both possibilities come from the same metaphor, THE ECONOMY IS AN AILING BODY; however, the source and target triggers do not fill the A-N slots at the same rate. Based on the examination of base-rate scores and keyness statistics, we believe these asymmetries have less to do with overall word frequency differentials and more to do with discourse context: public discussion of economic topics focuses more on macro- versus micro-economics.

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