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LEXICAL SEMANTICS IN THE COMMERCIAL TRANSACTION FRAME: VALUE, WORTH, COST, AND PRICE

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1. Introduction

Recently I have been working on the semantics of the *TIME IS MONEY metaphor theme*, by which term I mean the cognitive and lexical mapping that licenses our use of phrases like *spend time*, *waste an hour*, *worth your while*, and others of that ilk, in which we refer to temporal concepts with lexical items that are defined with respect to the cognitive area of **MONEY**. Lakoff and Johnson (1980), in developing their concept of metaphor, do not provide much in the way of details about how they think metaphors work. I wanted to supply those details, and in the process test their theory. I found that in order to do this, I had to develop a rather fine-grained description of what *MONEY* meant. Being a linguist, I started by trying to find out what the English lexical item *money* means.

Now *money* is not a simple word. Clearly, it involves assumptions and presuppositions of some fairly complex kinds; the best-worked-out account of these in the linguistic literature is Fillmore's (1977a, 1977b) **Commercial Transaction Frame (CTF)**. This frame provides precisely the minimum context necessary for defining the word *money*, and therefore is the best candidate for source of the metaphor. In my original study (Lawler, Forthcoming), I went on to show how the CTF is transformed into the frame that underlies much of the cognitive and linguistic structure of the concept of **perceived duration**, as expressed in English.

However, I found that I had, metaphorically speaking, built a cannon to kill a fly. The Commercial Transaction Frame is not only implicated in

the *TIME IS MONEY* metaphor theme, it is also the basis of a number of other metaphors; more importantly, it is the definitional context for a large set of common English lexical items. Important as metaphor is (and I am in no position to disagree about that), more conventional lexical semantics is also of interest. The question I am investigating is: What other semantic uses can the CTF be put to?

This paper is one result of that inquiry. In it, I will discuss the lexical semantics of four common English words that are associated with the CTF and allied frames: *value*, *worth*, *cost*, and *price*, showing how the CTF is useful in determining exactly what their meanings are, and in illuminating a number of unexpected symmetries in their behavior (as well as a number of strange asymmetries, for which I currently have no explanation).

2. The transfer, barter, and commercial transaction frames

Some background is in order before we begin. In this section I will briefly summarize the basic frames that describe Commercial Transactions; there are three of these. In increasing order of complexity (and decreasing order of generality), they are: the **Transfer Frame**, the **Barter Frame**, and the Commercial Transaction Frame proper.

Transfer of alienably possessed objects from one person to another is a very basic human event; it is grammaticized in most languages, giving rise to categories like Indirect Object. It is most likely derived semantically from the concept of Local Motion, and most languages with which I am familiar use many of the same structures to describe both transfer and motion; for example, English uses the preposition *to* to mark both Indirect Object and Motion Goal. The basic Transfer Frame is shown in Figure 1.

In this frame, there are two **Participants**, P_i and P_j , and one **Commodity**, X . The diagram is intended to indicate that X transfers possession, from

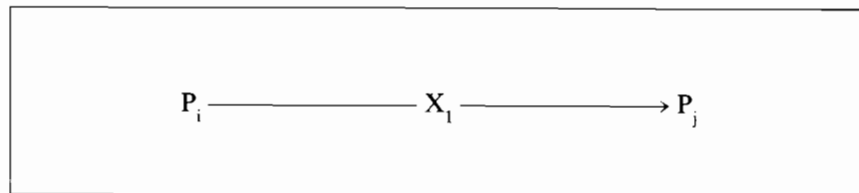


Figure 1

its original status as belonging to P_i to a new status as P_j 's property. This can be captured by invoking a **virtual instant** t_0 at which possession changes; before t_0 , P_i can be said to *have* X , while after t_0 , P_j *has* X . The idea of a **Path** arises originally in the context of Local Motion, and it is easy enough to see that there is a **Virtual Path** in Figure 1, with P_i as **Source**, X as **Trajector**, and P_j as **Goal**. These terms constitute the basic set of relations; additional ones can be added to distinguish among various instances represented by lexical items like *give*, *send*, *steal*, etc. Additionally, the nature of X can vary, but we will confine ourselves here to the basic case in which X is (very vaguely) defined as a *thing*.

Barter, represented in Figure 2 below, is a more complex case, consisting of two simultaneous reciprocal Transfers involving the same two Participants (P_i and P_j), but two different Commodities, represented as X_1 and X_2 . Both transfers take place at the same virtual instant, t_0 , and the change in conditions before and after that instant are what constitutes the Barter: Figure 2 represents the simultaneous transfer of X_1 from P_i to P_j and of X_2 from P_j to P_i that occurs conventionally at t_0 . The Path of the transfers is represented by the unlabelled directed lines, similar to the line in Figure 1. There is, of course, more to it; (1) below is a list of the meaning postulates that Figure 2 summarizes. (1) *a-d* are true **before** t_0 , while (1) *e-f* are true **after** t_0 .

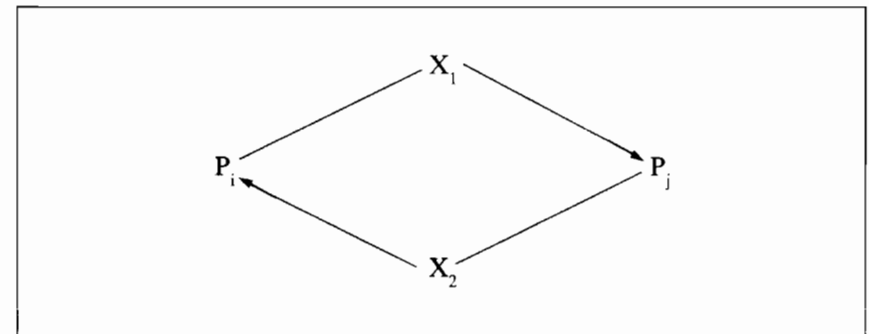


Figure 2

- (1) a. WANT (P_i, X_2) **before** t_0
- b. WANT (P_j, X_1) ”
- c. HAVE (P_i, X_1) ”
- d. HAVE (P_j, X_2) ”
- e. HAVE (P_i, X_2) **after** t_0
- f. HAVE (P_j, X_1) ”

Note that wherever there is a WANT postulate in (1)a-d, there is a corresponding HAVE postulate in (1)e-f, though there are no postulates in (1)e-f corresponding to the HAVE postulates in (1)a-d. We may describe this state of affairs with some terminology borrowed from Arc Pair Grammar, by saying that the original (pre- t_0) WANT postulates **Sponsor** the subsequent (post- t_0) HAVE postulates, which in turn **Erase** the original HAVE postulates. This encodes both the concept of transfer of possession, as well as the presupposition it is based on, namely that a thing can only be possessed by one person at a time.

The Barter frame also encodes a very important notion that is part of our concept of trade or barter, namely that the two Commodities are somehow equal in the eyes of the participants of the exchange. This is shown in the symmetry of the roles of the two Commodities, and in the implied equivalence of the degrees of desire expressed by the WANT predicates. WANT as a predicate actually refers to three arguments: the **Experiencer** of the desire, the **Object** of the desire, and the **Degree** of the desire. Further, a full specification of WANT would note that the Object is actually a clause — when we *want* a thing, we really *want to have* it. Other subordinate predicates can be easily supplied; it happens that HAVE is the default specification (McCawley 1977). Thus (2)a is really notational shorthand for (2)b, where d_2 is understood as the Degree to which P_i wants X_2 . This Degree argument must be greater than d_1 , the degree to which P_i wants X_1 , the Commodity s/he already *has* — otherwise the exchange would not take place. This is elementary, but it is important to make the point; we will return to these d -values presently.

- (2) a. WANT (P_i, X_2)
- b. WANT ($P_i, \text{HAVE} (P_i, X_2), d_2$)

Finally, the Commercial Transaction Frame proper can be seen as a special case of the Barter Frame. In a barter situation, neither party can be fairly said to be either the *buyer* or the *seller*. These are asymmetric roles, while the Barter Frame is completely symmetric; hence no non-arbitrary

attribution can be made to either Participant. To do this, as we assuredly need to do, if *money*, *buy*, and *sell* (among other words) are to be properly defined, we need to introduce some asymmetry. We do this by designating one of the Commodities (arbitrarily, X_1 in Figure 2) as *Money*, represented by \$. Figure 3 below is a fuller specification of the two successive static frame constituents of the CTF (3a, before t_0 , and 3b, after t_0) that constitute the transaction itself.

It can be seen that Figure 3 inherits almost all its properties from the Barter Frame; in this graphic rendition, the **Links** between the Participants and the Commodities are labelled, where they were not (though they could

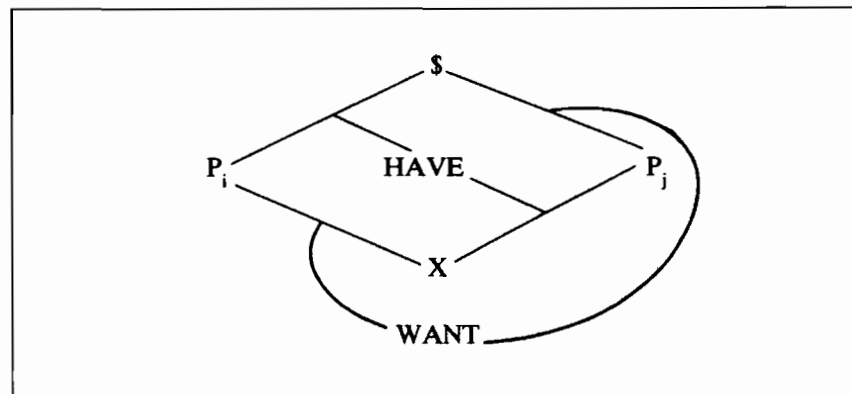


Figure 3a (before t_0)

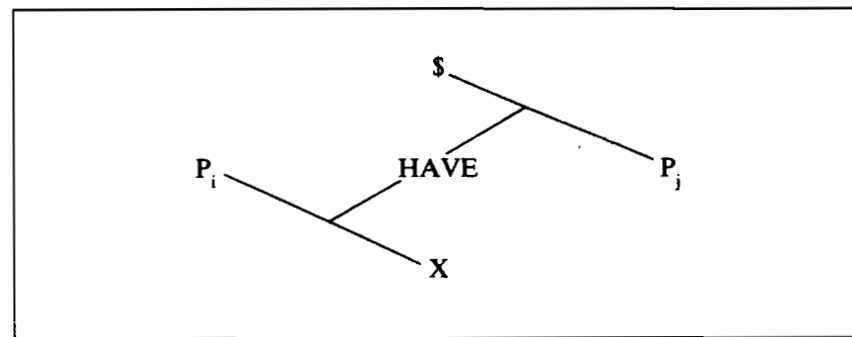


Figure 3b (after t_0)

(a)	<i>buy</i>	[P _i , X, (for \$), (from P _j)]
(b)	<i>sell</i>	[P _j , X, (for \$), (to P _i)]
(c)	<i>pay</i>	[P _i , \$, (for X), (to P _j)]

Figure 4

have been) in Figure 2. This innovation refers to the assumption that the predicates **HAVE** and **WANT** are primitives; it represents the transition from the postulates (expressed for the Barter Frame in (1)*a-d* above), which obtain **before** t_0 , to those in (1)*e-f*, which obtain **after** t_0 . The sole difference between the Barter Frame and the CTF is the special nature of one Commodity, introduced arbitrarily. That difference, however, makes the frame asymmetric, and that allows us to refer to each participant differently, and to categorize their actions (*i.e.*, define verbs denoting them) in a different fashion. Using the terms from the CTF ($\$, P_i, P_j, X$) as **Local Cases**, it is now a simple matter to define case frames for the principal CTF verbs *buy*, *sell*, and *pay* as in Figure 4.

3. The problematic words

There are several lexical items in English having to do with the conceptual field of **MONEY** which have some interesting peculiarities of categorial status, syntactic usage, and lexical semantics (especially in combination with other morphemes). These terms are considerably more obscure than *buy*, *sell*, or *pay*, which are fairly straightforward verbs by comparison. These words are: *value* as in (3):

- (3) a. That painting has a value of \$5000.
- b. The painting has great/little value.
- c. I value it/it is valued at \$5000.
- d. You can get a \$50 value for only \$29.95.
- e. The painting is valuable/valueless.
- f. Her assistance was invaluable.

worth as in (4):

- (4) a. That painting is worth \$5000.
- b. The worth of that painting is huge.

- c. The painting has great/little worth.
- d. I sold him \$10 worth of gas/potatoes.
- e. The painting is worthless.

cost as in (5):

- (5) a. That painting cost (me) \$5000.
- b. The cost of the painting was great.
- c. It had a high cost.
- d. This is not what I call low-cost housing.
- e. We costed out that project at 5 million dollars.
- f. That project costed out at 5 million dollars.

and *price* as in (6):

- (6) a. The painting has a price of \$5000.
- b. The price of the painting is high.
- c. That has a high price.
- d. I paid a price for that.
- e. I priced it/it is priced at \$5000.
- f. One of the manager's jobs is to price the merchandise.
- g. No thanks, I'm just pricing the merchandise.
- h. The painting is priceless.

which can appear together in a number of idioms and special collocations:

- (7) a. You can buy it at cost, a real value.
- b. The picture has sentimental value, but no intrinsic worth.
- c. It's not worth what it costs.
- d. Make sure your price isn't below your cost.
- e. At that price, it's worth it.
- f. It's priced below its market value.

(3) — (7) do no more than illustrate some of the constructional types these words can occur in; clearly they are not the same, either syntactically or semantically. Equally clearly, however, they have reference to similar (though not identical) concepts, and these may be clarified by examining their relation to the CTF.

4. Value and worth

Of the four words, one pair, *cost* and *price*, can be distinguished in the first instance because they make explicit reference to the CTF, while *value*

and *worth*, though they are related to the first pair, have a simpler reference type. The primary frame reference for *value* and *worth* appears to be the Barter frame, particularly the WANT-links established there. These links are, of course, present in the CTF as well, and it is with reference to this socially much more common type of exchange that the words probably find most of their usage. However, they are definable in terms of the more primitive symmetric exchanges represented by the Barter frame, and their use in CTF contexts may then be viewed as inherited from that frame. *Cost* and *price*, on the other hand, like *buy* and *sell*, are meaningless in a Barter context. We will consider them in the next section.

Both *value* and *worth* refer to the *d*-variables of the formula WANT (P, X, d), where *P* is a participant, *X* a commodity, and *d* the degree to which P WANTS X. In discussing these in Section 2, we passed over these abstract *d*-variables without much analysis, since although the transaction cannot take place unless they are determined and are ordered appropriately, all this is presupposed by the prototype Barter frame, hence by the CTF as well. There are, however, lexical items for which they are relevant; this is independent confirmation of their status as semantic primes for the CTF.

4.1. *Value*.

Value is the more abstract of the two, in that it refers solely to the *d*-variable, which is strictly mental and personal. One can scarcely conceive, for example, in what units *d* might be expressed; indeed, this practical problem is precisely the one for which *money*, and the CTF, provide a solution. A clue to the reference of *value*, as a noun, comes from its derived verbal senses. There are two of these, one covert stative and one overt active. We will designate them as *value*₁ and *value*₂, respectively:

- (8) a. P *values*₁ X (covert; stative)
 b. P *values*₂ X at \$ (overt; active)

as in (9):

- (9) a. He *values*₁ his mother's picture (highly).
 b. He *valued*₂ the picture at \$5000.

*Value*₁, a mental-state predicate, refers to the size of the degree-variable *d* that measures how much the Subject referent WANTS (to HAVE)

the Direct Object referent. There is a sizable lower threshold value for *d* in this construction, since even without the adverb *highly*, (9)a announces that *he* holds *his mother's picture* in high esteem. This may be due to a conventional or conversational implicature to the effect that the question would not arise if there were not some minimum degree of desire. This implies that we should define *value* as a non-zero degree variable *d* in WANT (P, X, d).

There is another, cancellable, presumption associated with this predicate: if P *values*₁ X, then it may be assumed that P already *has* X. There appears to be a pragmatic constraint in English on the use of *want*, to the effect that if one is reported to *want* a thing, then one does not already *have* it. However, logically one must *want* that one *has*, or one would get rid of it (*cf.* Lawler Forthcoming for further discussion). *Value*₁ is a verb often used (instead of *want*) to report this situation; this reinforces the identification of the noun *value* with a non-zero *d*-value for the predicate WANT.

*Value*₂, on the other hand, is a performative verb referring to a conscious act of judgement and communication on the part of the Subject, who announces some monetary amount (represented in the collocational array (8)b by the *at \$* phrase) intended to refer to an estimate of the degree variable *d*. This predicate is thus best defined solely in terms of the CTF as an extension of *value*₁, which is a Barter frame predicate. The \$ amount may or may not be official, since the Subject may or may not have been ceded the Authority to determine monetary values by which others are bound, and even if so, may or may not be exercising it in a given act of *valuing*₂. This distinction between acts of *valuing*₂ that are on and off the Record can introduce complexity, in the form of reporting unofficial events of *valuing*₂ with *would* ((10)a), or using other modals to refer to the setting of official valuations (b-c):

- (10) a. I would *value*₂ the picture at \$5000.
 b. That picture should be *valued*₂ much higher.
 c. Only the Director can *value*₂ the picture.

This latter fact helps explain why *valuable* and *invaluable* mean what they do. *Valuable* contains the modal suffix *-able*; the semantic question is what the scope of its possibility modal is. POSSIBLE would normally govern a proposition, hence another predicate, and the best candidates are those derived from the noun *value*: *value*₁ and *value*₂. So the modal predicate POSSIBLE here is interpreted as referring to the act of *valuing*, rather

than the simple *d*-variable referenced by the noun *value*. Hence if *X* is *valuable*, it must be possible for any (unspecified) *P* to *value* it, as in (11)*a* below; this must mean that the degree variable *d* is very high. The negative *in-* in *invaluable* takes the modal *-able* in its scope, producing a logical description something like (11)*b*:

- (11) a. $(\exists d) (\forall P) (\text{POSSIBLE} (P, \text{VALUE} (P, X, d)))$
 [= *valuable*]
 b. $\neg (\exists d) (\forall P) (\text{POSSIBLE} (P, \text{VALUE} (P, X, d)))$
 [= *invaluable*]

If it is in fact impossible for any *P* (with or without Authority, on or off the Record) to set the value of *X* at *d* for any *d* (no matter what its size), then *invaluable* cannot be synonymous with *valueless*, which simply announces that *X* is without value — that is, if *X* is *valueless*, the degree variable *d* in *WANT* (*P*, *X*, *d*) is necessarily zero for all *P*, the situation shown in (12):

- (12) $(\forall P) (\text{NECESSARY} (\text{WANT} (P, X, 0)))$ [= *valueless*]

Since zero is a possible value, and it cannot be arrived at by any *P* for an *invaluable* *X*, then such an *X* is not *valueless*. All this computation is tedious and potentially confusing, dealing as it does with the interactions of negation and modality, a perennially confusing topic. It is no wonder that the meaning of *invaluable* is obscure; most English speakers appear to learn it as a morphological idiom, if at all. No doubt this is helped along by the fact that the straightforwardly interpretable lexical item *valueless* exists for *invaluable* to contrast with paradigmatically.

Valuable and *invaluable* need not refer merely to *value*₂. The actual reference of the noun *value* is the degree *d* to which some human *P* *WANTS* some commodity *X*, and this can be seen in its uses and those of the adjective *valuable* in cases where the *X* element is a predicate. As noted in Section 2, the unmarked sense of the English verb *want* is *want to have*; however, one can use the verb with almost any predicate as a complement, and the senses of *value* and *valuable* in these constructions are precisely comparable to the senses we have been constructing for them here. For instance, in (13), the underlying context has to do with the desire to *use* this drug to treat glaucoma, rather than to possess it.

- (13) a. This drug has value/is valuable in treating glaucoma.
 b. This drug has incalculable value/is invaluable in treating glaucoma.
 c. This drug has no value/is valueless in treating glaucoma.

4.2. *Worth*.

While *value* is an abstract noun whose primary definition is associated with *WANT* rather than any transaction frame per se, *worth* definitely has to do with transactions, though not necessarily with the CTF. *Worth* can be meaningful in the context of any trade, whether actual or merely potential, and thus can be defined in terms of the Barter frame. The major difference between this frame and the CTF, recall, is that Barter does not include any designated \$ element; otherwise the frames are identical in structure and meaning.

Whereas *value* is a noun (with derived verbal senses) referring to a non-zero degree variable *d*, the categorial status of *worth* is a matter of some dispute. It has variously been claimed to be a preposition and an adjective (cf. Maling 1983 and McCawley 1985). If it is a preposition, then it must have a homophonous derived noun, since phrases like *the worth of the book* are common enough. On the other hand, if it is an adjective, then it must be **transitive**, since it has a complement; this is surely unusual — or even impossible, according to some theories of grammatical categories. I will have nothing to say about the categorial status of *worth* here, since the matter is irrelevant in considering its meaning; let it stand that no matter what category *worth* may belong to, it is an atypical example of the category.

The fact of the complement is the important point. It appears to refer to a non-zero *d*, stated in terms of some *X'* in a (real or potential) transaction definable with respect to the Barter frame — though often used with money words from the CTF. Evidence for this comes from (14):

- (14) a. The book is worth \$25.
 b. *The book is worth.
 c. *The worth book is on the table.
 d. *The worth \$25 book is on the table.
 e. The book worth \$25 is on the table.

(15) gives the meaning postulates for *worth*:

- (15) X (*be*) *worth* X' (*to* P)
- a. X and X' are Commodities and P is a Participant in a potential Barter frame; no transaction is necessarily implied.
 - b. HAVE (P, X) (either before or after t_0)
 - c. WANT (P, X, d)
 - d. WANT (P, X', d')
 - e. $d \geq d'$

Note from Condition (e) that the value of d (the degree to which P WANTS X) must be greater than or equal to the value of d' (the degree to which P WANTS X'). This has the effect of making any announced value of X' a **minimum**. That is, if X is *worth* X' (*to* P), then it may be worth even more. This, in turn, implies that the word is used with a complement implicating a measure of some kind, either of money (thus invoking the CTF), or some other quantifiable commodity.

Worth is often found, in fact, in a classifier-like construction that quantifies nouns, both mass and count, in terms of their monetary value, as in (3)d (repeated below):

- (3) d. I sold him \$10 worth of gas/potatoes.

and is also frequently used with the pronoun *it*, most commonly with an overtly unbound referent, as in (16):

- (16) Is this really worth it?

The pronoun refers contextually to the sum of whatever has been or may be exchanged for the referent of the Subject of *worth*. This *it* shows up in another interesting syntactic construction with *worth*:

- (17) a. A computer is worth having.
 b. ??It's worth having a computer.
 c. It's worth it having/to have a computer.
 d. Having a computer is worth it.

In (17), note first of all that there is a verbal complement *having* involved. This verb refers to the **state** of having a computer; *have* is of course already a stative verb, but this is not a requirement. Active verbs can be used, although the reference will be to the perfective state of having done whatever action the verb describes. Note also that there are two *it*'s in (17)c: the *it* of extraposition and the nonspecific *it* of *worth it*. Both of these seem to have the same flavor of dummy syntactic elements, even though the second one cannot be attributed to the same type of dummy-creating

processes as the first. It may be that this *it* is caught here in the first stages of the process by which a referential NP becomes an idiomatic dummy.

Worth participates in a number of other idiomatic constructions, for instance:

- (18) a. That's worth money.
 b. That's worth whatever it costs.
 c. That's worthless.
 d. That's not worth a damn.
 e. What's it worth to you?
 f. How much is it worth to you?

The sense of (18)a is that *that* is worth a considerable amount of money, evidence of the minimum threshold of *d*-value with *worth*; in *b*, we see that the complement of *worth* is to be identified with the complement of *cost*, at least in contexts where they are both meaningful, i.e. the CTF. This identifies the *d*-value of X in terms of what it might be exchanged for in the CTF, namely \$. *c* shows the negative compound *worthless*, which is pejorative, like *valueless*, but unlike *priceless* or *invaluable*. *Worthless* simply announces a zero degree of desire; this is the predictable negation of condition (15)e, that one's degree of desire for X be greater than or equal to what one could exchange for it. Since the exchange value is unspecified, but a zero degree of desire is announced by *worthless*, it must be the case that there is nothing one would exchange for it.

Similar remarks apply to (18)d, an example of the open "minimizer" class of Negative Polarity Items (*cf.* Horn 1989:400); if *that* is not worth even a damn, it's worth nothing. Finally, the distinction between a general interrogative *what* in *e* and the quantified interrogative *how much* in *f* shows the difference between the more general definition of *worth* with respect to the Barter frame and its more limited definition with respect to the CTF. While (18)f, with *how much*, must be answered with a measure phrase in terms of *money*, the more general (18)e, with *what*, need not be, and may in fact refer to a verbal complement.

To summarize this section: we have seen that both *value* and *worth* can be defined with respect to parts of the Barter frame that are inherited by the CTF. *Value*, a noun, refers directly to the degree of desire *d* of a Participant P for a Commodity X in the formula WANT (P, X, d), without reference to any degree of desire *d'* of that Participant for any other Commodity X'; that is, they are independent *values*. *Worth* also expresses the *d*-value of

one Participant for a Commodity, but in comparative terms of what might be exchanged for it. For this reason, it makes sense for *worth* to be a transitive predicate, in order to express the comparison.

5. Cost and price

While there are interesting similarities between the two pairs of words, *price* and *cost* show a number of differences from *value* and *worth*:

- [a] As mentioned above, *cost* and *price* are defined with respect to the CTF proper, rather than the Barter or Transfer frames, thus making use of its much richer set of distinctions. In a Barter transaction, one does not speak of *price* or *cost*, though *value* and *worth*, as we noted above, can have useful definitions in that situation.
- [b] *cost* is basically an stative verb, with homophonous derived active verbal and nominal forms, while *price* is basically a noun, with a homophonous derived active verbal form. All of these forms have complex and interesting multiple senses.
- [c] Unlike *value* and *worth*, *cost* and *price* are potentially antonymous, as (7)d (repeated below) shows:
 - (7) a. Make sure your price isn't below your cost.
- [d] Like *buy* and *sell*, which are also defined with respect to the CTF, *cost* and *price* make implicit reference to the **viewpoint** of different participants. In (7)d, for instance, the NP *your price* refers to the amount of the \$ element to be paid by the buyer, P_i , while *your cost* refers to the amount paid by the seller, P_j . This in spite of the fact that both NPs are marked as possessed by the same individual (*you*), who is unambiguously identifiable in this context as the person in the P_j role in some Commercial Transaction.
- [e] In addition, *cost* and *price* contrast in an **aspectual** dimension. In (7)d, while *price* (relative to P_i) refers to the present or contemplated Transaction, *cost* (relative to P_j) does not; rather, it refers to a **prior** transaction in which the individual in the current P_j role took the role of buyer, thereby coming to HAVE the Commodity in the current Transaction. This contrast invokes a **history**.

- [f] *cost* behaves rather strangely for a CTF verb: while *buy*, *sell*, *pay*, *spend*, etc. all have Participants as Agent Subjects, the principal arguments of *cost* are the Commodities X and \$. Of the Participants, P_j cannot appear in construction with the verb *cost*, while P_i appears, if at all, in a double object construction, exemplified in (19)a, which resembles obligatory Goal-advancement. However, the putative Goal (*me* in (19)) has entirely the wrong semantics for that function. If there is a Goal, there must be a Trajector, and it would appear that the \$ element, as Direct Object, is in focus and thus is the element that moves over a Path here. Yet *me*, the P_i element in the transaction, is the **Source** of the \$ element's Path, not its Goal; that would be P_j , which is barred from appearing at all.
 - (19) a. That lamp cost (me) \$50.
 - b. *That lamp cost \$50 to/from me.
 - c. *I was cost \$50 (by/for that lamp).
 - d. *\$50 was cost ((to/from) me) (by/for that lamp).
 - e. That lamp cost me.
 - f. That lamp really costs.
 - g. The cost of that lamp (to me) was \$50.
- [g] All these distinctions notwithstanding, *cost* and *price* can also mean the same thing, as the synonymous (20)a–b show:
 - (20) a. How much does that lamp cost?
 - b. What is the price of that lamp?

The contrast between *cost* and *price* shows up very interestingly in their nominal constructions with Participant NP's, as in (19)g. Two examples are the use of a Participant as a Genitive with the nouns *price* and *cost* ((21)a–c), and as a Dative in construction with them ((21)d–e). (The Commodity X may also be used in the genitive with either noun, though this usage presents no difficulties: *X's cost*, *X's price*, *the cost of X*, and *the price of X* are straightforward enough.)

- (21) a. Macy's cost(s) is/are lower than Gimbel's.
- b. &Macy's price is lower than Gimbel's.
- c. Macy's prices are lower than Gimbel's.
- d. The cost to Macy's is \$19.95.
- e. The price to Macy's is \$19.95.

Unlike (21)*a*, in which *cost(s)* refers explicitly to the amounts of money paid by Macy's and Gimbel's (in their P_i roles), *b* is ambiguous between two readings: a P_i sense synonymous with *a*, and a contrastive P_i one in which *price* refers to the amounts of money that must be paid to them (in their P_j role). The synonymous (P_i) reading of *b* is all but impossible when *price* occurs in the plural, as in *c*, since the implication of *b* on this reading is that the *price* referred to is a special one, quoted in a particular case for Macy's alone, and this is unlikely in the general situation implied by the plural in *c*. This reading is also less likely in context with the potentially contrastive use of *cost(s)*, since we would expect the contrastive reading of (21)*b* to be a logical commercial consequence of *a*. There is thus a potential role reversal involved here.

On the other hand, with a *to*-phrase the Participant roles cannot be reversed like this. With *cost* in (21)*d*, Macy's has the P_i buyer role, and this is also true with *price* in (21)*e*. Thus, *the cost to Macy's* is synonymous with *Macy's cost*, but *the price to Macy's* can only be synonymous with the first (P_i) reading of *Macy's price* in *b*, since *e* implies that the *price* is a special one, for Macy's alone, while the *cost* in *d* is understood as a general one, not restricted to Macy's.

This phenomenon is perplexing in two ways:

- [a] The preposition *to* is typically the mark of the Goal case, but the Trajector here appears to be the \$ element in the transaction, and the object of *to* in (21)*c-d* is the **Source** of the \$ element. This is the same problem we mentioned above with the verb *cost*.
- [b] There is no obvious reason why a genitive NP could occasion a potential role reversal, while a dative one would not. Put another way, there is no apparent cause for the potential invocation by *cost* of a transaction history in the genitive construction, but not with the *to*-phrase.

The first problem lies with the identification of the Path; if there is any Path with a Goal or Source here, then something other than the \$ element itself must be the Trajector, yet that is the element one would most obviously expect, since what is in focus is Money, not Commodity. Note that the Participant appearing with the stative verb *cost* in (19)*a*, while it may not appear with any preposition (*cf.* (19)*b*), occupies a syntactic slot consistent with obligatory Advancement of a Goal Indirect Object; that is, even though (19)*b* is ungrammatical, (19)*a* and *g* are both synonymous and

grammatical. That this is no ordinary case of obligatory Goal-advancement is shown by the failure of any variant of the construction to allow Passive ((19)*c-e*), no matter which NP argument functions as Subject.

I believe that there is a Path here, but it is Virtual, and it is not the path of the \$ element. Rather, it is the Path of **information** regarding the size of that element; the *to* appearing with the Participant element is more the *to* of Experiencer than Recipient. The lexical items *cost* and *price* represent predicates of psychological experience; recall that the kind of transfer actually being referenced in the CTF is conceptual transfer of possession, rather than physical transfer of objects. Most commercial transactions, in fact, are consummated without any physical transfer, being enacted entirely symbolically, through entries in ledgers and the like, though the metaphor of physical motion is powerfully present in our language about them.

To see what's going on, let us consider the pecuniary sense of the verb *charge*; this is a notably variable verb in that it appears in all the Subject-Object configurations possible with a Participant Subject in the CTF, as (22) shows:

- (22) a. He charged me \$25 (for the lamp). [P_i , P_j , \$, (for X)]
- b. He charged the lamp to me (??for \$25). [P_j , X, to P_i , (?? for \$)]
- b'. *He charged me the lamp (for \$25).
- c. I charged \$25 (??for a lamp) (*from him) at Macy's. [P_i , \$, (?? for X), (*from P_j)]
- d. I charged the lamp for \$25 (*from him) at Macy's. [P_i , X, (for \$), (*from P_j)]

(22)*a* has P_j as Subject and \$ as Direct Object; P_i is in a Goal-advanced role, and X shows up with the preposition *for*. *b* also has a P_j Subject, but X is Direct Object and P_i appears with the Goal preposition *to*; however, this construction does not allow Goal-advancement (*cf.* *b'*). On the other hand, *c* has P_i as Subject, but \$ as Direct Object, allows X to appear in a *for*-phrase only with anomolous effect, and does not allow P_j to appear at all, no matter what preposition is used. This defocussing of P_j is also the case in *d*, with P_i Subject, but X as Direct Object, and \$ with *for*.

Now *charge* (at least in the sense of (22)*a*, which seems likely to be its basic sense) is one candidate to fill a gap in the paradigm of CTF verbs; while *buy* and *sell* are the basic opposed pair with X as Direct Object, there is no obvious inverse to *pay*, which has \$ as its Direct Object. Figure 5 shows the pattern:

Primary CTF Verbs:

		Subj: P _i	P _j
Dir. X		<i>buy</i>	<i>sell</i>
Obj: \$		<i>pay</i>	—

Figure 5

Verbs like *receive*, *get*, *take*, or *collect* that can be used to refer to the event type symbolized by the gap in Figure 5 are not defined with respect to the CTF, like the other verbs in the Figure, but rather with respect to other, more general frames. Thus they would not make use of cases like P_i, P_j, \$, or X that are local to the CTF in their definition. However, *charge* appears to have \$ as its Direct Object, and P_j as its subject, so it looks like it might complete the paradigm, an event that would gladden any linguist's heart. Unfortunately, that turns out **not** to be what *charge* means. *Buy*, *sell*, and *pay* all entail an actual transfer of some kind: with *buy* and *sell*, it is the transfer of X, with *pay* of \$. *Charge*, on the other hand, does **not** entail that anything actually changes possession; to be sure, if the transaction carries through, *charge* may conventionally implicate the rest of the event, but, unlike the case with *pay*, this is a cancellable implicature in any sense of *charge*, as shown by (23):

- (23) a. He charged me \$25 for that, but I wouldn't give it to him.
 b. He charged the lamp to me, but I never got it.
 c. *I paid him \$25 for that, but he wouldn't take it.

If *charge* doesn't entail an actual transaction, then what does it mean? I suggest that it is concerned with transfer of **information**, rather than money. When it is used with P_j as subject, as in (22)a–b, *charging* something is a matter of transferring information about the \$ element in a transaction. Note that P_j (the Goal of the information) can appear only as a Goal in these constructions, while there is no possible Goal (and no possibility of expressing P_j at all) if P_i appears as the Subject, as in (22)c–d. Indeed, *charge* with P_j Subject is a performative verb, with the perlocutionary force of instituting P_j's official claim the P_i owes P_j (a certain amount of) \$ in exchange for X. This is not the same as transferring the money, any

more than giving an order to do something is the same as doing it, though we can sometimes rely on conventional implicatures to convey the appropriate sense. The equivalent verbal use with P_i Subject ((22)c–d) appears to be a causative with an indefinite causee; if (22)c or d is asserted, for instance, the speaker must be committed to the truth of (22)a for some indefinite P_j as a normal causative entailment.

Similarly, the *cost* or the *price* of a commodity is not the money that is actually exchanged, but rather information about its amount. I claim that both these words, whether used as nouns or verbs, refer not so much to the \$ element per se as to its size. This information is construed as being transferred (cf. Reddy 1979 on the **Conduit Metaphor**, which develops this notion of information transfer more fully) and traversing a Path to an Experiencer Goal, who must be a Participant, since only Participants may be Experiencers in the CTF.

This ramification of the meanings of both *cost* and *price* helps in untangling their senses in terms of the CTF. In our culture, where almost all commercial transactions have fixed prices, the Path of the information has its Source in the Participant who decides it (the seller, P_j) and its Goal in the Participant who receives it (the buyer, P_i); this accounts both for the occurrence and the unambiguousness of *to me* in (19)g. The *to*-phrases can be seen as referring in each case to the Goal of the information, and since the Goal in both cases is P_i, these phrases will pick out the same Participant, no matter which word is involved as NP head. It also accounts for the interpretation of *me* as a Goal-Advanced Participant with *cost* in (19)a and (21)b, as well the same phenomenon with the Information-Path verb *charge* in (22))a–b. It does not, of course, account for the obligatory nature of Goal-Advancement with these verbs, nor for the variety and limitations of the constructions *charge* can occur in.

It does, however, help us understand the variety of senses available with genitive and dative constructions in (21). The meanings of *cost* and *price* in the *to*-constructions are governed by the implied Paths of the Dative, since it is expressed; but this is not the case with genitives, which are free to invoke the history that is barred by the Dative Path interpretation. Since *cost* (and *price*) refer to information, this puts them into the category of content (“picture”) nouns, which are prone to behave in quite variable ways with possessives, and in fact to generate ambiguities quite similar to the one in (21)b.

However, this information-transfer interpretation, interesting and useful as it may be for explaining syntactic peculiarities, holds for both *cost* and *price*. We cannot therefore use it to explicate the differences in their meaning; these must be considered individually.

5.1. *Cost*.

The stative verb *cost*, a member of the irregular monosyllabic *t*-final zero-past-suffix verb class, does not occur with a participant Subject, which is unusual for a CTF verb. It can occur with (or without) a participant Goal, as in the optional version of (19)*a* above, without a \$ element but with a participant Goal, as in (19)*c*, or without either one, as in (19)*d*. If a participant is not specified, the implication is that the cost is or would be the same for anyone, while if the \$ measure phrase does not occur, the implication is that it would be very large, perhaps too large. This is evidence of a positive threshold value for the \$ element. We also get, by normal English zero derivation, the noun *cost*, which refers straightforwardly enough to the content of the information about the size of the \$ element.

There is also a derived active phrasal verb *cost out*, with an Agent (possibly, though not necessarily, a Participant) Subject and a Commodity Direct Object, which requires the preposition *at* to express the \$ element, as in (24) below. It is rather technical in its meaning: to determine cost, either in advance of some complex transaction such as entering a bid, or by constituent analysis of some ongoing process. I have also heard on occasion a similar technical use of the verb *cost* without the particle *out*; these uses are largely restricted to the field of Cost Accounting and its ilk. Since I am not attempting to cover the sublanguage technical usages of money terms here, this observation represents the furthest I intend to go in that particular direction.

- (24) He costed/*cost that (out) at \$150,000.

Interestingly, the morphology of this verb is regular, with *-ed* allomorphs for both Past and Participle forms. Regularization like this is fairly common with reified terms or compounds derived from irregulars, as shown by the use of regular forms for the causative of *shine*: *shine*, *shined*, *shined* versus irregulars for the stative: *shine*, *shone*, *shone*; or by the unacceptability of compounds with normal but irregular derivation, like **New English Boiled Dinner*, or inflection, like **Toronto Maple Leaves*.

5.2. *Price*.

Whereas *cost* is basically a verb, with derived active verbal and nominal senses, it seems clear that *price* is basically a noun. There are, to be sure, verbal senses of *price*, but they are equally surely zero-derived, as (6)*f–g* (repeated below) show:

- (6) f. One of the manager's jobs is to price₁ the merchandise.
g. No thanks, I'm just pricing₂ the merchandise.

As a verb, *price* seems to have two meanings:

- (a) *price*₁: to set the price in anticipation of a transaction, potentially a performative, and a part of P_j's script [(6)*f*]
(b) *price*₂: to discover the price set in anticipation of a transaction, not a performative, and a part of P_j's script [(6)*g*]

The ambiguity of the verbs derived from *price* is very reminiscent of the well-known vagaries of noun-derived verbs, such as *seed* in (25):

- (25) a. He was seeding the lawn.
b. He was seeding the pepper.

The verb *seed* in (25)*a* means to put seeds **into** the lawn, while in (25)*b* it means to take seeds **out of** the pepper. This distinction is due to the context-sensitive nature of the process of deriving a verb from a noun; it is part of our ordinary knowledge about horticulture that one must put (grass) seed on lawns, while peppers already have seeds, which must be removed to prepare them as food. Similarly, it is part of our ordinary knowledge about conventional commercial transactions that merchants (potential sellers: P_j) must set prices for transactions, while consumers (potential buyers: P_i) must find out what prices are set to participate in a transaction.

Two important points emerge from this evidence. First, as we might have expected, both meanings of the verb *price*, as well as the meaning of the derived active verb *cost (out)*, have to do with the generation (and transfer) of **information** about the size of the \$ element in some transaction, rather than with an actual transfer of funds. This interpretation is supported by the fact that both of them can be accurately paraphrased by the phrase *determine the price/cost*, which is ambiguous in precisely the same ways. It may mean **either** to set a price or cost, or to find it out; and *determine* is crucially concerned with the concept of information.

Second, both of the possible activities denoted by the derived verb *price* take place **in anticipation of** the consummation of a transaction, like the noun *price*, which refers to the current transaction, but unlike the contrastive sense of the noun *cost*, which refers to an already completed transaction. We may thus speculate that some tense, aspect, or modal distinction should be made here; for instance, one between *cost* as invoking a perfective aspect or a factive mode, and *price* as invoking a future or irrealis aspect, or a potential mode.

The aspectual/modal distinction between *cost* and *price* also helps explain the meanings of their respective negatives. There is no word **cost-less* in English, but *free* is its suppletive equivalent, just as *ever* suppletes for **anytime(s)* in negative polarity environments in standard English. There is, however, a lexical item *priceless*, and its meaning is very far from that of *free*. If *cost* and *price* are understood as, respectively, perfective/factive and anticipatory/potential, then their compounds with *-less* should refer to quite different epistemological situations.

Under this analysis, if there was no **cost** in some transaction, the understanding would be that \$ was in fact equal to zero in that transaction, which is the ordinary meaning of *free*. The transaction is understood as having taken place, but as being effectively one-sided — an instantiation of one real Transfer only, of X from P_j to P_i , without a corresponding Transfer of non-zero \$ the other way. This is a degenerate case of the CTF, thus a deviation from the prototype, but a transaction nonetheless.

On the other hand, if there can be no **price** in a potential transaction, then it is reasonable to understand that, because of the nature of the X element, or the desires of the seller P_j , there can be in fact no \$ element in any putative frame, and therefore that no transaction involving this X element can or will take place; hence the usual meaning of *priceless*.

This contrast is a close parallel to that of *invaluable* versus *valueless* and *worthless* discussed above. Like the negative *in-* of *invaluable*, the negative *-less* of *priceless* takes a modal (in this case the potential mode posited for *price*) in its scope, with the result that instead of implying that the \$ element is equal to zero, like *free* (parallel to the implication of *valueless* that *d* equals zero), *priceless* implies that there can be no \$ element at all (parallel to the implication of *invaluable* that there can be no officially fixed *d*-value). Thus, in both cases involving negatives with possibility modals, the conclusion is that no transaction is possible. The parallel is made closer by the fact that in the CTF it is often convenient to indicate *d*-values

in monetary terms, thus producing an effective pragmatic equivalence between *d* and \$ in many conventional contexts, and practical synonymies between *invaluable* and *priceless*, on the one hand, and *worthless* and *valueless*, on the other.

To summarize: the words *worth*, *value*, *cost*, and *price* are all different, and have a number of complex uses. We have seen that the simplicity of definition varies considerably: *value* refers to the predicate WANT only, *worth* to the Barter Frame, and *cost* and *price* to information regarding Experiencer roles in the CTF proper. We have also pinned down the precise specifications of the frame that go into the definitions of each, and seen how the morphological compounds and the zero derivations of the words are related. Perhaps the most unusual results are the informational interpretations of *cost* and *price*, and the aspectual distinctions between them. These can lead to useful further analyses of the conventional social interactions in which the prototype CTF is embedded.

On the theoretical side, we have seen that these words and others can be profitably explicated by using the Local Cases in terms of which they are defined in the Commercial Transaction Frame, their primary frame reference. This method has the benefit, unlike normal Case Grammars, of not multiplying universal entities beyond necessity, while still being able to use individual contextual information in cases where it's obviously helpful, unlike more Universalist-oriented theories.

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