Constraints on Motion Verbs in the TIME IS MOTION Metaphor
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1. Introduction

This study analyzes the structure of metaphorical mappings from the domain of spatial motion to that of passing of time, based on Lakoff and Johnson's framework (Lakoff and Johnson 1980, Lakoff 1993, Johnson 1987, etc.). This study shows which parts of the concept of spatial motion are mapped onto that of time and which parts are excluded from this mapping through analysis of English and Japanese.

Under the assumption that the source domain is "motion", the source structure is analyzed in terms of the Motion Event Frame as suggested by Talmy (1985), and it is examined whether all the inferential structures of the source domain are mapped onto target. It will be shown that there are a lot of mapping gaps in this metaphor. Though English and Japanese differ in their major conflation patterns (the former is a satellite-framed language, and the latter is a verb-framed language), these languages have quite similar constraints on the mappings (or mapping gaps).

2. Constraints on the Motion-Time Mapping

It has been previously argued that there are at least two different types of Motion-Time mapping. One is TIME IS A MOVING OBJECT (e.g. *The time will come* when .....), and the other is TIME IS A LINE ALONG WHICH OBSERVERS MOVE (e.g. *We are approaching* the end of the year.). To analyze the source domain structure, Talmy's Motion Event Frame is employed. This frame consists of two components, central and non-central. The following is the description of this frame.

(1) The Motion Event Frame (Talmy 1985, with a slight revision of my own)

The Central Elements

Figure (the moving object),
Ground (the reference-object with respect to which the motion is conceptualized),
Path (the course followed or site occupied by the figure object with respect to the Ground object),
Motion

The Non-Central Elements

Manner (the way in which the Figure moves),
Cause, Circumstance, and Resultant State

2.1. Constraints on Manners of Motion

We will first see the constraints on manners of motion because English motion verbs has a dominant tendency to conflate manner information, and so this is the biggest part of this research. 168 English manner-of-motion verbs and 77 Japanese manner-of-motion verbs were researched. Though Japanese has in fact only 14 manner-of-motion verbs, this language has a very productive system of making compound verbs consisting of two motion verbs, the first of which is a manner-of-motion verb. These compound verbs were included in the 77 verbs researched. The English and Japanese manner-of-motion verbs used in this study appear in the appendix at the end of this paper.

The constraints and examples are as follows.

(2) Constraint (i): Motion verbs which do not have at least one of the following implications cannot be extended to the concept of time.
  (a) the implication of saliently high or saliently low speed
  (b) the implication that the motion is unnoticeable for the observer
  (c) the implication of smooth, invariable motion
  (d) the implication of rhythmical motion

(3)
  a. Time hurried on. (2a)
  b. The days slipped by. (2b)
  c. Time flows. (2c)
  d. Time marched on. (2d)
  e. ??Time shuffled [limped/jogged/waddled/etc.] by. (*2a-2d)

(4)
  a. jikan-ga tobisaru
     time-Nom fly-leave
     'Time flies away.' (2a)
  b. unmee-no toki-ga shinobiyoru.
     fate-Gen time-Nom sneak-approach
     'Time of fate sneaks up.' (2b)
  c. toki-ga nagareru.
     time-Nom flow
     'Time flows.' (2c)
  d. ??toki-ga oyogu [mau /chiru /haneru /etc.]
     time-Nom swim /dance /scatter /leap /etc. (*2a-2d)

(5) Constraint (ii): Motion verbs that have one or more of the following implications cannot be extended to the concept of time.
  (a) the implication of instruments used for the motion
  (b) the implication of sound emission

(6) a. ??Time rocketed away. (5a)
b. ??The years rattled by. (5b)

(7) a. ??toki-ga roketto-de sugi-te-it-ta.
time-Nom rocket-by pass-and-go-Past
'Time passed by rocket.' (5a)
b. ??toshitsuki-ga gatagata-to sugi-te-it-ta.
year-month-Nom with-a-rattle pass-and-go-Past
'Time rattled by.' (5b)

Both in English and Japanese, the examples that seem natural have implications (2a-d), and bad examples lack these implications or they have implications (5a-b). By checking all the 168 English and 77 Japanese manner-of-motion verbs, it is found that English manner-of-motion verbs that can be naturally used in time expressions (Moving Time metaphor) are *flow, fly, crawl, creep, dash, hurry, march, run, rush, sneak, roll, slide, slip,* and *glide*; the Japanese ones are *nagareru* 'flow', *?hashiri-saru* 'run-leave', *tobi-saru* 'fly-leave', *nagare-saru* 'flow-leave', *kake-nukeru* 'run through', *shinobi-yoru* 'sneak-approach'.

2.2. Constraints on Path

There are two constraints on the path information.

(8) Constraint (iii): The path information is restricted to a one-dimensional line or a cyclic path (where cyclic path is restricted to the cases implying recursive experience).

(9) a. ??Time zigzagged by.
b. ??toki-ga dakooshi-te-it-ta.
time-Nom zigzag-and-go-Past
c. ??The days curved on.
d. ??hibi-ga magat-te-it-ta.
days-Nom curve-and-go-Past
e. ??We curved [zigzagged] through time.
f. ??wareware-wa toki-no naka-o magat-te [dakooshi-te]-it-ta.
we-Top time-Gen in-Acc flow-and [curve-and]-go-Past

However, the following examples show that in some cases, more than one dimension of time can be expressed.

(10) a. Time rolls on.
b. toki-ga meguru / ??mawaru.
time-Nom roll cycle

In these cases, some kind of repetitious experiences such as the four seasons, annual cultural events, and so on are implied. (Japanese makes distinction by two verbs with approximately the same meaning *meguru* and *mawaru*. Only *meguru* is used for time.) That cyclic path is restricted to repetitious experiences is supported by the next set of examples. It is unusual that we expect a repetitious experience occurring at 3:17 every day, and *the end of the world* is believed to occur only once in Judeo-Christian view of the world. This is basically the same in Japanese, though Buddhist view might allow you to say 'the end of life came around again'.

(11) a. Leap year [??3:17 PM / ??the end of the world] came around.
b. Uruudoshi [??gogo 3-ji 17-fun/ ??sekai no owari] ga megut-te- ki-ta.
leap-year pm.hour minute world-Gen end Nom round-and-come-Past

(12) Constraint (iv): The path is restricted to the front-back axis (though the up-down axis is seen in peripheral cases).

The supporting examples are the following (Japanese counterparts are shown after each of the English examples):

(13) a. ??Time climbed on. ?
?toki-ga nobot-te-it-ta.
b. ??The days ascended away.
??hibi-ga agat-te-it-ta.
c. ??Time fell by.
??toki-ga ochi-te-it-ta.
d. ??We are falling into the 21st century.
??wareware-wa nijuuisseeki-ni ochi-te-iru.
e. ??We ascended ten years.
??wareware-wa juunen agat-ta.

Thus the up-down axis seems to be rejected in this mapping. However, Japanese has some peripheral idiomatic use of the up-down axis.

(14) a. ima-kara sanbyaku-nen sakanoboru-to, Edo-jidai dearu.
now-Abl 300-years ascend-back-Conj Edo-era be
'Ascending backward for 300 years from now, it is Edo era.'
b. Kamakura-jidai-kara yonhyaku-nen kudaru-to, Edo-jidai dearu.
Kamakura-era-Abl 400-years descend-Conj Edo-era be
'Descending for 400 years from Kamakura era, it's Edo era.'

c. ??chuushoku-ga owat-te-kara ichi-jikan kudat-ta tokoro-de,
lunch-Nom end-Part-Abl 1-hour descend-Past place-Loc
kinkyuurenraku-ga hait-ta.
urgent-announcement-Nom enter-Past
'Descending for 1hour after finishing lunch, we received an urgent call.'

Though not very productive, Japanese seems to have the EARLIER IS UP / LATER IS DOWN pair of metaphors. (14c) shows that the up-down motion seems appropriate only when a long-term consideration of time is involved, such as talking about history. Japanese also has a small set of Chinese-origin words like *joojun* 'the upper ten days of a month' (the first ten days), but these are fixed idioms and not productive.

2.3. Constraints on Moving Objects

The moving objects are also restricted.

(15) Constraint (v): The moving object should be time or the observers.

There are only a few verbs that conflate the part of the moving object in English and Japanese. In English, only *rain* and *spit* are suggested (Talmy 1985). These verbs are not used for time expressions.

(16) a. *Time rained quickly. (=Time passed quickly.)
b. *We are raining toward Christmas. (=We are approaching Christmas.)

These are not acceptable since the verb *rain* denotes that the moving object is some kind of water that falls down from the sky. This moving object cannot be understood as time.

(17) Constraint (vi): The moving time should not be more than one entity.

(18) *Time trooped by.

Since *troop* denotes that the moving objects are plural, this verb cannot be used to express passing time.

2.4. Constraints on Causes, Circumstances, and Resultant States

These elements are all rejected in expressions of time passage.

(19) Constraint (vii): Circumstances or environment of motion, causes and resultant state cannot be mapped.

The following examples support this constraint. Japanese counterparts are shown after each of the English examples.

(20) a. ??Time swam by.
??toki-ga oyoi-de –it-ta.
b. ??The years waded away.
(Japanese has no counterpart.)
c. ??Time wore wings to the past.
*toki-ga kako-e tubasa-o matot-ta.
d. ??The days blew off. (=The days passed.)
??hibi-ga fukiton-da.
e. ??John blew off the weekend. ('John'= moving object)
??jon-ga shuumatu-kara fuki-ton-da.
f. ??John pulled loose from the weekend.
??kare-ga shuumatu-kara hikinuk-are-ta.
g. ??Time stuck to Wednesday.
??toki-ga suiyoobi-ni kuttui-ta.
h. ??John stuck to Wednesday.
??jon-ga suiyoobi-ni kuttui-ta.
Cf. The napkin blew off the table. (Talmy (1985: 63))
Napukin-ga teeburu-kara fukiton-da.

(20a-b) imply that the motion took place in water, and this makes these expressions awfully unnatural, since time does not exist in water. The physical motion expression *Mary wore a red dress to the party* is acceptable, but this does not apply to time as in (20c). The Japanese counterpart is unacceptable even for physical motion; there is no counterpart for the time expression in (20c). (20d-f) show that the cause of motion cannot be applied to time expressions. This may be because time is not conceptualized as something that is moved by some outside agents. Verbs with resultant-state meaning such as *stick* cannot be used for time expressions as in (20g-h). This may be because the passage of time is conceptualized as being smooth and incessant so that time does not stay at any fixed states. All of these present clear contrasts with expressions of physical motion, where cause, circumstance and resultant state can be expressed.

3. Treatment of the Mapping Gaps

Under the assumption that the source domain of the time metaphor is 'motion,' we find more than a few mapping gaps or constraints on mappings. As shown in the above sections, the same constraints or gaps are found in English and Japanese. We must somehow explain these mapping gaps. One possibility is the Target Domain Override, as suggested by Lakoff (1993), that is, to attribute all the mapping gaps to the inherent target domain structure. However, we find that some of the mapping gaps have independent experiential motivations. These

mapping gaps do not seem to have been caused by the inherent target domain structure.

The concept of time itself does not restrict us from conceiving of time as moving in directions other than front or back. The front-back constraint seems to be motivated by our experience of basic directions of motion. Our asymmetrical body with inherent front and back, and our bodily structure designed to move in the direction of the front, mark the front-back axis as the most basic, important one for human beings. If this bodily experience motivates the front-back constraint, then it is not the inherent structure of time that causes this mapping gap. In that case, we must think of some independent metaphor as Grady (1996) suggests.

The peripheral selection of the up-down axis in Japanese also seems to be motivated experientially. For example, imagine a slope, on which you put a ball. If you leave it there, it rolls down without your making any efforts. However, if you want to take the ball up the slope, you have to consume some energy. Likewise, though we do not need any effort to go on to future experiences, we need effort, or we need to consume some energy if we want to recall the past. Thus up-down time metaphors have independent experiential motivation from front-back time metaphors. This leads us to conclude that the up-down time metaphors are different and independent time metaphors and should be separated from the front-back time metaphors.

One-dimensionality of time might also be experientially motivated. It is suggested by Evans (in preparation) that our neural capacity of differentiating one moment from a previous conscious moment motivates the one-dimensionality of the time concept.

Thus, there seem to be two different kinds of mapping gaps in TIME AS MOTION: those which come from the structure of the target concept, and those which come from experiential motivations. To fully explain these mapping gaps, it might be necessary to separate these two kinds of gaps and treat them differently. Grady et al (1996) suggest distinguishing primitive and compound metaphors, and Fauconnier and Turner (1995, 1996) suggest the blending model of metaphor. These ideas might help analyze those mapping gaps, though in this study a full analysis was not shown.

4. Conclusion

As discussed above, there are more than a few mapping gaps in TIME AS MOTION. To fully explain these mapping gaps, we must take into account the difference in the nature of the mapping gaps, i.e., the difference between those that come from the Target Domain Override and those which come from independent experiential motivations.

5. Appendix (cf. Shinohara (1997))

Motion verbs examined in this study:

Asterisk indicates that it is inappropriate to use the verb in expressions like 'Time

_____ by (away, on, etc.).'

Question marks indicate that the use of the verb is not totally inappropriate but it is somewhat strange or needs some special context (judged by two to five native speakers).

List of Motion+Manner Verbs (English) (168)

Verbs of Motion by spontaneous (internal) cause

?amble, ?bowl, *burst, ?canter, *clamber, *climb, crawl, creep, dash, *flit, fly, ?gallop, ?hasten, *hike, ?hobble, *hop, hurry, ?inch, *jog, *jump, ??lag, *leap, *limp, ?lumber, ?lurch, march, ?mosey, ?nip, ?pad, *parade, *plod, *plow, *pop, *prowl, ??race, *ramble, *roam, *rove, run, rush, ??saunter, *scramble, ??scud, ?scurry, *scuffle, ?scuttle, ??shamble, ??shuffle, *skim, *skip, *slouch, sneak, *soar, speed, ??stagger, *stalk, *stray, ?stride, *stroll, *strut, *stumble, *swagger, ?sweep, *swim, ??tear, ?tiptoe, *toil, *toddle, *totter, *tramp, *trek, *troop, ?trot, *trudge, *vault, *waddle, *wade, *walk, *wander, ?zip

Verbs of Motion by unconscious (external) cause

*bounce, *bound, *coil, ??drift, *float, flow, glide, *meander, ??revolve, roll, slide, slip, slither, *swing, *tumble, *whirl, *wind

Verbs of Motion with the type of instrument used

*cruise, *drive, *fly (by plane), *ride, *row, ??sail

Verbs derived from nouns of instruments

*bicycle, *bike, *boat, *bus, *cab, *canoe, *chariot, *cycle, *dogsled, *ferry, *helicopter, *jeep, *jet, *oar, *paddle, *pedal, *raft, *rocket, *skate, *ski, *sled, *sleigh, *taxi, *yacht

Verbs of sound emission

*babble, *bang, *beat, *beep, *burr, ??buzz, *chatter, *clash, *clatter, *hiss, *gurgle, *rattle, ??roar, *rumble, *screech, *shriek, *splash, *thump, *whistle,??zoom

Verbs of dancing

*boogie, *dance, *jig, *jive, *polka, *rumba, *samba, *tango, *waltz

Verbs of body-internal motion

*buck, *fidget, *kick, *rock, *teeter, *twitch, *waggle, *wiggle, *wobble, *wriggle

List of Motion+Manner Verbs (Japanese) (14 single verbs and 63 compound verbs)

(I) Single Motion+Manner Verbs

*aruku (walk), *hashiru (run), *haneru (leap), *hau (crawl), *kakeru (run),

*moguru (dive), *oyogu (swim), *tobu (fly), *tobu (jump), *chiru (scatter), *korogaru (roll), nagareru (flow), *suberu (slide), *mau (dance)

(II) Compound Verbs: [V1(Manner) + V2(Path)]
*aruki-mawaru (walk around), *ayumi-deru (walk out), *ayumi-saru (walk-leave), *hai-agaru (crawl up), *hai-deru (crawl out), *hai-mawaru (crawl around), *hai-modoru (crawl back), *hai-oriru (crawl down), *hane-agaru (leap up), *hane-mawaru (leap around), *hane-modoru (leap back), *hashiri-deru (run out), *hashiri-komu (run into), *hashiri-mawaru (run around), *hashiri-oriru (run down), ?hashiri-saru (run-leave), *kake-agaru (run up), *kake-komu (run into), *kake-mawaru (run around), *kake-meguru (run around), *kake-modoru (run back), *kake-noboru (run up), kake-nukeru (run through), *kake-oriru (run down), *korogari-deru (roll out), *korogari-komu (roll into), *koroge-mawaru (roll around), *korogari-modoru (roll back), *korogari-nukeru (roll through), *korogari-ochiru (roll-fall), *korogari-oriru (roll down), *korogari-saru (roll-leave), *mai-agaru (dance up), *mai-komu (dance into), *mai-modoru (dance back), *mai-ochiru (dance-fall), *mai-oriru (dance down), moguri-komu (dive-into), *nagare-deru (flow out), *nagare-komu (flow into), *nagare-kudaru (flow down), *nagare-ochiru (flow-fall), nagare-saru (flow-leave), *nagare-tsuku (flow-arrive), *nige-dasu (sneak away), *oyogi-mawaru (swim around), *oyogi-saru (swim-leave), *oyogi-tsuku (swim-arrive), shinobi-yoru (sneak-approach), *suberi-deru (slide out), *suberi-komu (slide into), *suberi-ochiru (slide-fall), *suberi-oriru (slide down), *tobi-agaru (jump up), *tobi-dasu (jump out), *tobi-deru (jump out), *tobi-koeru (jump over), *tobi-komu (jump into), *tobi-mawaru (jump/fly around), *tobi-oriru (jump down), tobi-saru (fly away)

(III) Compound Verbs: [V1(Manner) + V2(Manner)]
*mai-chiru (dance-scatter), *mai-tobu (dance-fly)

References

Evans, Vyvian. (in preparation). Time and future as conceptual blends.

Fauconnier, Gilles and Mark Turner. (1996). Blending as a central process of grammar. In Adele Goldberg (Ed.), *Conceptual Structure, Discourse and Language*. Stanford: CSLI Publications, 113-130

Grady, Joe, Sarah Taub and Pamela Morgan. (1996). Primitive and Compound Metaphors. In Adele Goldberg (Ed.), *Conceptual Structure, Discourse and Language*. Stanford: CSLI Publications, 177-188

Johnson, Mark. (1987). *The Body in the Mind: The Bodily Basis of Meaning, Imagination, and Reason*. Chicago: The University of Chicago Press

Lakoff, George. (1990.) The Invariance Hypothesis: Is abstract reason based on image-schemas? *Cognitive Linguistics* 1, 39-74

Lakoff, George. (1993a). The syntax of metaphorical semantic roles. In J. Pustejovsky (Ed.), *Semantics and the Lexicon*. Dordrecht: Kluwer, 27-36

Lakoff, George. (1993b). The contemporary theory of metaphor. In Andrew Ortony (Ed.), *Metaphor and Thought* (Second ed.). Cambridge: Cambridge University Press, 202-251

Lakoff, George and Johnson, Mark. (1980). *Metaphors We Live By*. Chicago: The University of Chicago Press

Moore, Kevin. (to appear). Deixis and the front/back opposition in temporal metaphors. *Conceptual Structure, Discourse and Language-4*. Stanford: CSLI Publications

Shinohara, Kazuko. (1997). Epistemology of space and time: Analysis of conceptual metaphors in English and Japanese. PhD dissertation, International Christian University. Published 1999, Hyogo: Kwansei Gakuin University Press

Talmy, Leonard. (1985). Lexicalization patterns: semantic structure in lexical forms. In T. Shopen (Ed.), *Language Typology and Syntactic Description* (vol. 3), Cambridge: Cambridge University Press, 57-149