

The Metaphor TIME AS SPACE across Languages

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1 The domains of space and time

The impact of spatial orientation on human thought and, in particular, our understanding of time has often been noted.¹ Lakoff (1993: 218) assumes that our metaphorical understanding of time in terms of space is biologically determined: “In our visual systems, we have detectors for motion and detectors for objects/locations. We do not have detectors for time (whatever that could mean). Thus, it makes good biological sense that time should be understood in terms of things and motion.” This explanation is not fully convincing because there is empirical evidence that humans directly perceive and “feel” the passage of time (see Evans, in print). Our direct experience of time is subjective and may, therefore, be strikingly different from objective time. Thus, a given duration of time is experienced as lasting longer or shorter depending on our state of awareness and the amount of information registered. For example, the duration of time in situations of heightened awareness and high information processing such as during times of suffering or danger is experienced as passing more slowly, while in situations of low information processing, such as during routine activities, time appears to pass more quickly. Evans convincingly argues that our experience of time results from internal, subjective responses to external sensory stimuli and that by imparting spatio-physical “image content” to a subjective response concept we are able to “objectify” our temporal experience. According to this view of time, our spatial understanding of time is not determined by biological needs, but by intersubjective, or communicative, needs. We need spatio-physical metaphors to speak about time in the same way that we need concrete metaphors to speak about other internal states such as emotions or thoughts.

We may, however, consider a third reason why the metaphor TIME AS SPACE is so pervasive. In *Metaphors We Live by*, Lakoff and Johnson (1980: Ch. 21) draw attention to the power of metaphor to create new meaning. Our veridical experience of time is restricted to only a few of its aspects: simultaneity and duration, and the awareness of the present as the time experienced at each moment, the past as the time related to remembered events, and the future as time related to predicted events. In metaphorizing time as space, these notions are typically seen with respect to a one-dimensional line, the time axis. But the “cognitive topology” of space has more to offer than a straight, one-dimensional line. Space is, in the first place, three-dimensional. Secondly, orientation in three-dimensional, earth-based space requires three axes: a longitudinal axis, a vertical axis, and left-to-right axis. Thirdly, objects in space may come in any shape. Fourthly, reference to space may be absolute or relative, and relative space may be relative with respect to things in the world or the observing EGO. Fifthly, things in space may be stationary or in motion. Sixthly, space is populated with things in the widest sense, which may serve as figures or reference points and are associated with certain properties and typical behaviors.

In conceptualizing time as space, we may take advantage of the conceptual richness inherent in the spatial domain as a whole and, in mapping its structural elements onto time, impart new meanings onto temporal notions. For example, we may think of time as moving up or down, which we do, or as staggering from left to right, which, under normal circumstances, we do not. It is to be expected that those aspects of space which best conform to our everyday experience in the spatial world are preferentially made use of and typically found across languages. But, in

lexicalizing notions of time, different languages may also exploit the cognitive topology of space in different ways. This paper will be concerned with the ways different cultures and their languages conventionally make use of the pool of spatial meanings in conceptualizing and expressing notions of time. We will look at the following dimensions of space and their metaphorical mappings on time: dimensionality of time (Section 2), orientation of the time-line (Section 3), shape of the time-line (Section 4), position of times relative to the observer (Section 5), sequences of time units (Section 6), and time as motion (Section 7).

2 Dimensionality of time

Languages typically have forms that mark the dimensionality of the landmark in a spatial relationship. In English, some of the dimensional prepositions used to characterize the shape of the landmark are also used to express notions of time. As is well known, English spatial and temporal prepositions make a three-way distinction: zero-dimensional *at* is used for moments of time as in *at this moment*, two-dimensional *on* is used to describe periods of time, in particular days as in *on my birthday*, and three-dimensional *in* and *within* are used to refer to periods of time other than days, both shorter than days as in *in a second* and longer than days as in *in a week*. The one-dimensional preposition *along* is not used for temporal notions. A comparison with the German dimensional prepositions of time reveals considerable differences between these two closely related languages. German dimensional prepositions only make a two-way distinction for spatial and temporal senses: one-dimensional *an* is used for certain periods of time as in *an meinem Geburtstag*, while three-dimensional *in* covers both moments of time as in *in diesem Augenblick* and, as in English, shorter and longer periods of time as in *in einer Woche*. German does not have a specific preposition referring to points in space or time and does not use the two-dimensional preposition *auf* in a temporal sense - except in special directional usages as in *Mein Geburtstag fällt auf einen Mittwoch*. On the other hand, German has a postposition, *lang*, expressing duration as in *eine Stunde lang*. The distribution of English and German dimensional prepositions of time is summarized in Table 1.

time notions	English		German	
	dimension	preposition	dimension	preposition
point	0	<i>at</i> (this moment)	3	<i>in</i> (dem Moment)
duration		<i>for</i> (a week)	1	(eine Woche) <i>lang</i>
period: days	2	<i>on</i> (this day)	1	<i>an</i> (diesem Tag)
other units	3	<i>in</i> (a week)	3	<i>in</i> (einer Woche)

Table 1: English and German dimensional prepositions of time

These temporal extensions of spatial meanings are certainly not haphazard in each of these languages and may probably be accounted for historically, which, however, is beyond the scope of this paper. What this brief contrastive presentation is meant to show is that dimensions of space cannot straightforwardly be transferred onto the domain of time and that cross-linguistic variability seems to be the rule rather than the exception.

The picture is, however, more systematic with metaphorical extensions of content words: a moment of time is metaphorized as a zero-dimensional “point in time”, duration is described one-dimensionally as having “length” or being “long” or “short”, and a period of time is seen either two-dimensionally as a “stretch” of time if the focus is on temporal continuity, as in *a*

stretch of two weeks without sunshine, or three-dimensionally as a “span” of time if the focus is on the bounded duration of the period as in *We worked together for a span of six years*. Many more content words such as *lifespan*, *frame of time*, *space of time* also directly reflect specific spatial dimensions.

3 Orientation of the time-line

Time which is conceived of as one-dimensional will of necessity have an orientation in space. Of the three geometrical axes, the longitudinal axis with its front-back orientation apparently captures our experience of time better than either the vertical axis with a top-down orientation or the lateral axis with a left-right orientation. The latter does not seem to offer any sensible spatial basis for our understanding of time at all. The preference for the longitudinal axis may be due to our spatial experience of motion, which is almost invariably directed to the front. The front-back orientation of time shows up in expressions such as *the weeks ahead of us* or *the worst behind us*. In Western cultures, the front-back orientation predominates in temporal scenes. We do not see a vertical or lateral movement underlying temporal expressions such as *this coming month*, *the days gone by* or *the following week*, i.e., we do not visualize a month approaching from above or from the left side.

In Chinese, on the other hand, the vertical axis commonly applies in conceptualizing time. Earlier times are viewed as “up” and later times as “down”. Thus, *shànyuè* (up.month) means ‘last month’ and *xiànyuè* (down.month) means ‘next month’.² A vertical axis of time is in conformity with the widespread view of time as flowing or the “river model” of time. In China, the cultural importance of the Yangtze River may have reinforced the preference for viewing time as vertical. Yu (1998: 111) conjectures that “up” and “front” have a common experiential basis: “When we lie down on our stomach and crawl, we normally move in the direction of head rather than feet. So our heads become fronts just like the fronts of any moving objects, such as cars, trains, ships, planes, rockets, and so forth.” This view is confirmed by Svorou’s (1994: 73, 150) data, which show that “terms for ‘head’ may give rise to either front-region or top-region grams.”

Western cultures may also conceptualize earlier time as “up” and later time as “down”. Yu (1998: 112) mentions as a telling example the way a family tree is drawn. The older generations are at the top and described as *ascendants*, while the younger generation are at the bottom and described as *descendants*. In English, time may be seen as flowing down from the earlier time into the present, i.e., the past is up and the present as down, as shown in the following examples:

- 1 a. These stories have been passed *down* from generation to generation.
- b. This tradition has lasted *down* to the present day.

We should expect that, in this view of time, time continues flowing down beyond present time into the future. But this is not the case: we can hardly say [?]*This tradition will last down into the future*, but only *This tradition will last into the future*.

For future time, English uses a different model in which the observer towers both above the future and the past. Future time is down and comes up to the observer’s present as in (2a), from which it may go down again into the past as in (2b).

- 2 a. The new year is coming *up*.
- b. This year went *down* in family history.

This model of vertical time is based on an anthropocentric view of the world with the observer occupying the highest position. The future comes up to his level from below but does not go higher up to the past as in **The old year has gone up*. The past goes down as in (2b) or may simply disappear as in *The old year has gone*.

The vertical conceptualizations of time in Chinese and English may be represented as shown in Figure 1.

	Chinese	English
UP	Past (Present)	Past (cf. 1) ↓ (Present)
DOWN	Future	Future (cf. 2a) Past (cf. 2b)

Figure 1: Vertical time in Chinese and English

The future in English may also be seen as “up” as in *That’s up in the future*. This view of the future is, however, based on a different kind of experience. As shown by Lakoff and Johnson (1980: 20), this use of verticality relates to the metaphor UNKNOWN IS UP as in *That’s up in the air* versus KNOWN IS DOWN as in *The matter is settled*.³

4 Shape of the time-line

Only the “good” geometrical gestalts of a straight line and a full or partial circle are used as spatial shapes of the time-line. Atypical and irregular shapes are much less compatible with our experience of time, although we may think of “creative” metaphors such as *The new year stumbled upon us* or *The old year fluttered away*, which, however, suggest a particular manner of motion rather than a specific shape of the time-line. The straight line with its potentially open ends provides an ideal template for time as passing, and most of our Western concepts of time make use of the linear model.

The circle as a two-dimensional form is ideally suited to represent recurrent, cyclic time. The notion of cyclic time is often associated with exotic languages, but it is far from uncommon in Western languages. It is, for example, reflected in the proverbial expression *History always repeats itself*. The only time unit which is readily understood as circular in English is the year as in (3a), while days require specific wordings as in (3b).

- 3 a. Guided tours are offered year-round.
- b. Our shop is open round the clock.
- c. *He slept round the day.

The circular understanding of a 24-hour day in (3b) is, of course, iconically motivated by the round shape and the small hand of a clock - although it normally goes round the clock twice in 24 hours. Days in general as well as other cyclic units of time such as seconds, minutes, hours, weeks, or centuries are not metaphorized in English as ‘round’.

While a full circle suggests the repetition of the same time or event, a sector suggests taking a new direction away from a line or cycle. The sector of a circle is therefore used to describe

completed cycles which are seen as establishing substantial changes. This is the case with expressions like *turn of the century* and *to turn twenty*.

5 Position of times relative to the observer

Only notions of relative, typically deictic, space provide a suitable metaphorical template for time. As in the world of space, the EGO occupies a prominent role as the temporal reference point. The predominant view of time as a time-line allows a distinction between three deictic times: present, past and future. Present time coincides with the moment of speaking as the temporal reference point - metaphorically, the speaker is an observer whose position on the time-line is the present. The idea of 'present time' may also be elaborated by descriptions of the ways humans experience things in their immediate vicinity, as in the Chinese expressions for 'present time': 'on hand.existing', 'just at.front', 'eye.front', 'eye.below', 'eye.underneath', 'eye.face.front' and 'foot.under' (Yu 1998: 95). The concept of a time-line has the advantage of providing opposite poles for locating the past and the future. The question is, however, which end of the time-line is to be chosen for the past and which one for the future.

The river model of time as in Chinese provides a natural analogue for positioning past and future times on the vertical time-line: past time is located at the upper end of the time-line and future time at its lower end. Conversely, the anthropocentric model as illustrated for English leads to a viewing arrangement in which both the future and the past are 'down' relative to the higher position of the observer at present time.

The pattern predominantly found across languages is that of the horizontal time axis and, especially in Western languages, of the future as being in front of an imaginary observer. This viewing arrangement reflects our folk model of time, according to which we move towards the future and leave the past behind us. But we also apply this viewing arrangement to static situations, in which the observer's inherent front-back orientation determines the front region and hence the position of the future. The following descriptions of static situations illustrate our standard arrangement with the future in front of us (cf. 4a) and the past behind us (cf. 4b):

- 4 a. I can't face the future / Troubles lie ahead / I look forward to seeing you.
- b. That's all behind us now / That was way back in 1900 / Look back in anger.

The future may, however, also be seen as lying behind and the past as lying in front of the observer. The logic of this arrangement is that we can "see" or know the past, but not the future. A number of languages have been reported to use this arrangement of time. Miracle and Moya (1981) and Klein (1987) found this model of time in the Indian languages Aymara and Toba, which are spoken in Peru and Bolivia respectively, and Dahl (1995) describes it in Malagasy. In Aymara, "the past" is rendered as *nayra timpu* (eye time, i.e., 'the time before my eyes') and "tomorrow" as *q'ipi uru* (back day, i.e., 'the day at my back'). Similarly, past events in Malagasy are described as "in front of the eyes" and future events as "behind". As nicely put by one of Dahl's (1995: 198) informants, the future is totally unknown and "behind" because "none of us have eyes in the back of our head". Time in Malagasy moves from the invisible future behind the observer and becomes visible when it passes the observer in the present and moves on into the past.

The time model of Toba is particularly sophisticated. It combines the idea of visibility of the past with cyclic time: time moves in a circle in a counter-clockwise circle as shown in Figure 2.

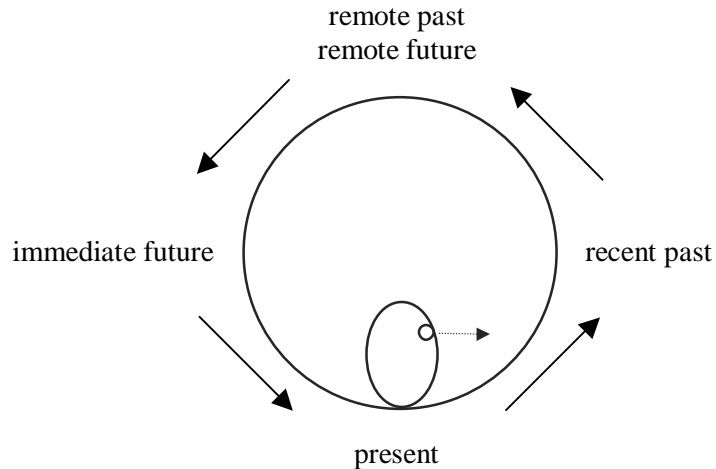


Figure 2: Toba time

Time first moves from the observer's view until it is halfway up the circle at recent past, from where it moves out of view and ends up as remote past opposite present time, where it merges with remote future. Time then comes back from behind the observer, and halfway down on the other side of the circle it becomes immediate future, from where it moves back into present time. The logic of this time model requires that the observer turns around if he wants to see the immediate future approaching from behind. Interestingly, speakers of Toba and Aymara look over their left shoulders when looking into the future. The "left shoulder phenomenon" has also been reported in an unrelated Indian language, Tao, which is spoken in Taos Pueblo, northern New Mexico in the United States.⁴

Languages have sometimes been claimed to code the past as lying in front and the future as lying behind on the basis of a few isolated expressions. For example, the following expressions might be taken as evidence for this view of time in Chinese:

- 5 a. *ri.qian*
day.front
'a few days ago; the other day'
- b. *ri.hou*
day.back
'in the future; in the days to come'

These data are, however, in conflict with a number of verbs which collocate only with future or past times and literally mean 'look forward' or 'look ahead' and 'turn around' or 'turn back', respectively.⁵ Here, the future is metaphorized as lying in front and the past as lying behind the observer. To understand the logic behind (5a) and (5b), we need to see the times they metaphorically describe as being part of a sequence of time units on the time-line.

6 Sequences of time units

We typically conceive of time as a sequence of units (of days, years, etc.). Their temporal ordering metaphorically corresponds to their spatial sequencing. Sequences of time are particularly relevant for the ways notions of time are conceived of and expressed when they

involve the speaker/observer. Both in spatial and temporal sequencing, the observer may adopt two kinds of perspective: an in-tandem, or ego-aligned, perspective, and a face-to-face, or ego-opposed, perspective. Let us first look at the less familiar in-tandem perspective.

6.1 In-tandem perspective

The in-tandem perspective is commonly adopted by speakers of West African languages. Hill (1978, 1982) has shown how speakers of Hausa construct an aligned spatial field for two objects of comparable size. For example, a spatial situation in which a speaker looks at a spoon and a more distant calabash will be described in Hausa as in (6a) or (6b):

- 6 a. *Ga cokali can baya da k'warya*
 look spoon there back with calabash
 'There's the spoon in front of the calabash'
- b. *Ga k'warya can gaba da cokali*
 look calabash there front with spoon
 'There's the calabash in front of the spoon'

To a Hausa speaker, the spoon and the calabash are aligned with the observer and facing away from him. According to Hill (1978: 528p.), the majority of Hausa speakers also use the in-tandem perspective with temporal sequences, which can be taken as strong evidence for the TIME AS SPACE metaphor. Thus, a later day of the week is described by Hausa speakers as being 'in front of/before', and an earlier day is described as being 'in back of/behind' a later one. Figure 3 illustrates the model of aligned time units relative to the observer, which parallels the one of aligned objects in space.

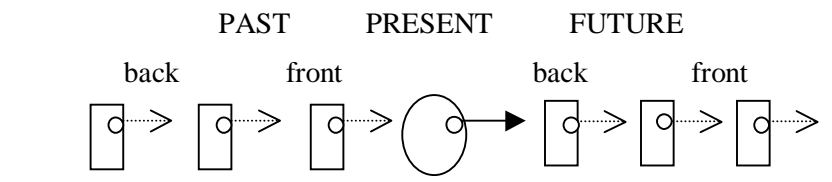


Figure 3: In-tandem perspective

Following the logic of this model, 'the day before yesterday' is positioned behind 'yesterday' and is, accordingly, described as 'back of yesterday'.⁶

6.2 Face-to-face perspective

The face-to-face perspective is the preferred viewing arrangement for speakers of Western cultures. If two objects of comparable size are in line with the observer, the nearer object is seen as facing the observer and the more distant one as lying behind the first object. Likewise, in temporal space, 'tomorrow' is seen as facing us and 'the day after tomorrow' as lying behind 'tomorrow'. Following the logic of the face-to-face perspective in Figure 4, *the day after tomorrow* naturally means a later day in the future and *the day before yesterday* an earlier day in the past. The same applies to Chinese, where 'the day before yesterday', *qian-tian*, literally translates as 'the front, or ahead, or before day', and 'the day after tomorrow', *hou-tian*, literally means 'the back, or behind, or after day' (Yu 1998: 106p.).

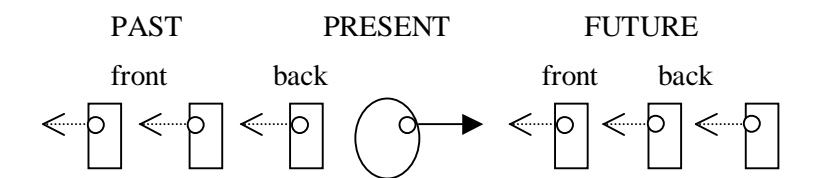


Figure 4: Face-to-face perspective

The examples looked at so far involved an observer dividing an unlimited sequence of time units into future time and past time. In this model of time, the positions of the time units relative to each other remain the same, irrespective of whether they are located in the future or in the past. Thus, both *I will graduate before I get married* and *I graduated before I got married* describe the same temporal sequence of celebrating my graduation before my wedding. This also applies to lexicalized expressions such as *prewar* or *antebellum*, which, irrespective of their location in time, refer to a period preceding a war, versus *postwar* or *postbellum*, which refer to a period following a war.

We may, however, also conceive of sequences in still different ways. One possibility is having the human observer occupy a vantage point in the middle of the time-line, from which he may look both into future and past time using the same ego-centric perspective. This is the case in a few lexicalized expressions of French (7) and Italian (8).⁷

- | | | | |
|---|--|---|---|
| 7 | a. <i>arrière-petit-fils</i> ;
behind-small-son
'great-grandson' | <i>arrière-petite-fille</i> ;
behind-small-daughter
'great-granddaughter' | <i>arrière petits-enfants</i>
behind-small-children
'great-grandchildren' |
| | b. <i>arrière-grand-père</i>
behind-grand-father
'great-grandfather' | <i>arrière-grand-mère</i>
behind-grand-mother
'great-grandmother' | <i>arrière-grands-parents</i>
behind-grand-parents
'great-grandparents' |

In the French kinship system, the third generation is seen as being behind the second one both in ascending and descending generations. The use of *arrière* with later generations as in (7a) conforms to the normal face-to-face model as in *the day after tomorrow*, and the use of *arrière* with earlier generations as in (7b) is its mirror image, in which the observer turns around. This egocentric arrangement is sketched in Figure 5:

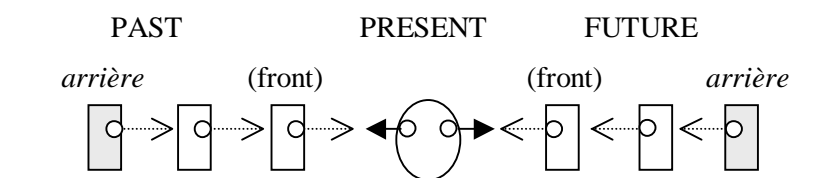


Figure 5: Egocentric perspective

In Italian, a similar arrangement is achieved by the use of *altro* ('other') with time units, suggesting that the entity described as *altro* is located behind another entity in a row.

- 8 a. *domani l'altro* also: *dopodomani*
tomorrow the other after.tomorrow
'the day after tomorrow'
- b. *l'altroieri* also: *avantiieri*
the other.yesterday before.yesterday
'the day before yesterday'

The expressions *dopodomani* and *avantiieri* correspond to the traditional pattern as found in English. The bipolar pattern with *altro* is, however, not restricted to days. It is also used with 'year' as in *l'altro anno*, which may refer to the next year or to the last year.

Still another way of viewing sequences of time is having them bounded at one end. Depending on the position taken by the observer relative to the end, different metaphorical arrangements are possible. The observer may be positioned outside the sequence of time units. This is the case in an expression such as *last week*, which forms the end of a sequence of weeks in the past and is the one that is closest to the observer, lying behind him. Its counterpart in future time would be the week heading a sequence of weeks in the future. However, **first week* is not lexicalized in English; instead, we have *next week*. Here, too, we are dealing with the notion of sequence: *next* is historically the superlative of *nigh* 'near' and, as in the German superlative form in *nächste Woche* 'nearest week', implies at least two more entities lying farther away. *Next week* only applies to the week to come and not the week gone by because this is the week of the sequence of weeks that the observer faces.

The observer may also be included in the sequence of time units. This spatial situation explains the use of the German expression for 'last week', *vorige Woche*, literally 'before week'. *Vorige Woche* is part of a sequence of weeks which includes the present week - and possibly some more weeks lined up behind in the future - and which is facing the past from the future. Following the logic of this model, 'two weeks ago' is rendered in German as *vorvorige Woche* 'before-before week'. This situation is diagrammed in Figure 6, where the arrows indicate the direction of the sequence of time units.

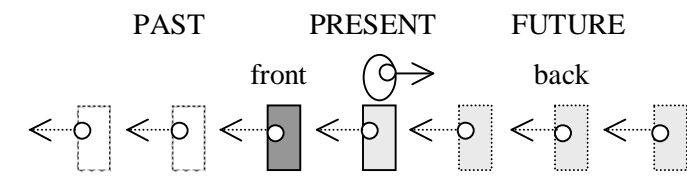


Figure 6: 'Front' denoting past time as in *vorige Woche*

We are now also in the position to explain the seemingly paradoxical Chinese examples encountered under (5), in which a day in the past was expressed as 'day.front' and a future day as 'day.back'. The spatial arrangement underlying these temporal expressions is the same as the one found in German *vorige Woche* and illustrated in Figure 6. Chinese *ri.qian* (day.front = 'a few days ago') refers to the day or days in front of a sequence of days which includes today and possibly some more days lined up in the future, and hence denotes past time. Conversely, *ri.hou* (day.back = 'in the future') refers to the day or days at the end of a sequence of days which includes today and possibly some more days lined up in the past. The sequence of days is again directed from the future to the past, and in the logic of this arrangement, 'back day' denotes future time, as illustrated in Figure 7.

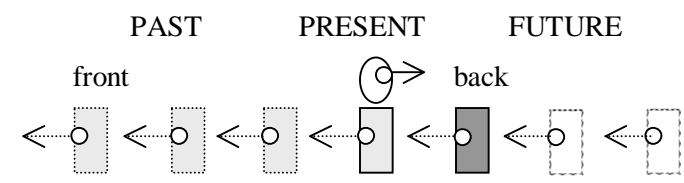


Figure 7: 'Back' denoting future time as in Chinese *ri.hou*

The view of sequential time presented above assumes that sequences are directional and even tend to be seen as motional rather than as purely static situations. Svorou (1993: 22) plausibly argues that the static “aligned” reference frame is a consequence of a movement reference frame, which determines front and back. Motion thus plays a greater role in our understanding of time than its motional metaphors might suggest. We will finally consider the impact of motion for our understanding of time.

7 Time as motion

7.1 Two models of time as motion

When asked to explain the notion of time people will invariably make use of expressions of motion: *time passes, flows, goes by*, etc. Moreover, people commonly view time as moving from the past via the present to the future. But it is not only time that moves, but also the world as a whole also moves in time. If everything moves in the same direction and at the same speed, however, we can no longer perceive motion and the notion of motion becomes vacuous. The perception of motion requires a background which allows us to notice the spatial changes resulting from an object’s motion. Ideally, the background is fixed, but it may also be in motion itself provided that it moves at a different speed as in *We’re trying to catch up with the time* or moves in another direction, as in *We’re racing against time to finish our homework*. Here, we will only consider the more common model of motion relative to a stationary ground.

It has been noted by many scholars that we use two basic models of conceptualizing time as motion: the “moving-time model” and the “moving-ego model”.⁸ In the moving-time model, time is conceived of as moving. Lakoff (1993) describes the metaphor based on this model as TIME PASSING IS MOTION OF AN OBJECT. Time may move non-deictically, i.e., irrespective of a human observer as in *It’s getting close to sundown*, or deictically, i.e., relative to a stationary human observer as a reference point. In the moving-ego model, the observer is conceived of as moving and time as being stationary. Lakoff (1993) describes the metaphor based on this model as TIME PASSING IS MOTION OVER A LANDSCAPE. The difference between the models can be seen in the ambiguity of the following sentence provided by Miller and Johnson-Laird (1976: 463):

9 He advanced the date of the meeting by two days.

Depending on whether we think of time as advancing toward us or of us as advancing into the future we interpret the sentence to mean that the meeting was to be held earlier or later than originally fixed, respectively. The ambiguity is due to the use of the non-deictic verb *to advance*. Typically, the metaphorical variants are expressed by using the deictic motion verbs ‘come’ and ‘go’. But, as illustrated in the following examples, ‘come’ and ‘go’ may also be used in both variants:

- 10 a. The new year is *coming*. (Moving time: *come* = future)
 b. The old year has *gone by*. (Moving time: *go* = past)
 c. I am *going* to do it. (Moving ego: *go* = future)
 d. Je *viens* de le faire. (Moving ego: '*come*' = past)
 I come from it do
 'I have just done it'

The spatio-temporal orientation characterizing the moving-time model is the opposite of that of the moving-ego model. In the former model, time “comes” from the future (10a) and “goes” into the past (10b), in the latter model, the observer, “goes” into the future (10c) and has “come” from the past (10d). This situation can be expressed in French but lacks a *come*-equivalent in English.

From a cognitive-linguistic perspective we should try to find an answer to the question why languages have developed these two models, i.e., what is their cognitive motivation? Let us look at the two models in turn.

7.2 The moving-time model

The moving-time model appears to be in accordance with our folk view of time as flowing. People are, however, surprised when they realize that in situations such as (10a) and (10b), time does not flow from the past to the future, but from the future to the past. In this respect, the moving-time model is diametrically opposed to our entrenched belief in the direction of the flow of time. Since this model of time is so widespread cross-linguistically, it must, in spite of its reversal of the expected flow of time, have certain cognitive advantages. These are:

- The moving-time model allows us to relate moving time to a fixed ground: the stationary world. The key figure in the stationary, unchanging world is the human observer, and time and events in time pass by him as in *coming week* and *past week*. This model is motivated by our self-centered view of the world, in which each human being sees himself at the very center of the world.
- The moving-time model allows us to conceptualize our experience of time as changing: the future changes into the present and the present changes into the past.
- The moving-time model allows us to bestow an independent existence upon time: units of time become measurable relative to each other irrespective of their deictic positioning, as in *the following week* ‘the later week’ and *the preceding week* ‘the earlier week’.

The source of the moving-time model is the physical world. The notion of moving time is reminiscent of Newton’s first law of motion, according to which every object continues in uniform motion in a straight line, unless compelled to change that state by forces acting upon it. There is no force that changes the straight motion of time, so time keeps forever moving. The observer’s only contribution in this scenario is that of occupying a position on the time-line and watching the passing of time from his vantage point. The moving-time model thus lends itself to the notion of time and events as evolving and occurring.

7.3 The moving-ego model

In this variant, the observer comes from the past and moves via the present into the future, while time as the reference ground remains stationary. The moving-ego model is reflected in expressions such as (10c) and (10d) or *We are approaching golden times* and *We have left the*

worst behind us. This model of static time is inconsistent with our folk view of moving time, but it also has aspects of cognitive motivation:

- The moving-ego model is consistent with our view of the flow of time: the observer as part of the world moves in the “right” direction, from the past into the future.
- The moving-ego model allows us to conceptualize time in terms of our image-schematic, sensorimotor experience of locomotion.
- The moving-ego model allows us to relate notions of time to other important concepts, in particular, goal-directed actions.

The moving-ego model is based on people’s locomotion. When people decide to move to some place, they typically do so intentionally and with the purpose of doing something at the destination.⁹ Equally, locomotion in time typically involves intentionality. Thus, sentence (10c), *I am going to do it*, expresses a goal-directed, intentional future, where the motion verb *go* has been grammaticalized as a future marker. Also the *be going to*-future with non-humans as in *It’s going to rain soon* is motivated: it conveys prediction about a future event on the basis of a normal course of events.

We can also explain the motivation for the use of ‘come’ in the moving-ego model to describe past and future events. As amply illustrated by Fillmore (1971), spatial *come* typically expresses motion to one’s “homebase” as in *I have just come home*. This notion of ‘come’ also underlies the French example of recent past (10d), *Je viens de le faire*, where the present serves as the temporal homebase. It is, however, less natural for people to “come” to another person’s homebase; they then have to adopt the other person’s point of view as in *I’ll come over to your place*.

8 Summary

Our understanding of time is essentially metaphoric. The most important metaphorical source domain is that of space, and the conceptual metaphor TIME AS SPACE is conceptually well-motivated. However, the topologies of space and time differ in some respects: in particular, space is three-dimensional, while time is thought of as one-dimensional. As a result, the TIME AS SPACE metaphor allows for considerable variation in the mappings of particular structural elements. This study investigated six dimensions of time regarding which variations in metaphorical mappings typically occur: (i) dimensionality of time, (ii) orientation of the time-line, (iii) shape of the time-line, (iv) position of times relative to the observer, (v) sequences of time units, and (vi) motion of time.

Different cultures and languages as well as the same culture and language may make different uses of potential mappings. Certain beliefs about the nature of time turn out to be ill-founded. For example, with respect to the position of time and events on the time-line, many languages are often believed to code the future as being behind and the past as being in front. This is, in fact, a very exceptional pattern. In languages like Chinese and Japanese, the future is conceived of in front and the past behind, and their apparently contradictory position on the time-line can be explained by the observer’s division of the sequence of time units. The two variants of conceptualizing motion of time also appear, at first sight, to be counter-intuitive: they do not conform with our folk view of flowing time. In the moving-time model, time flows into the “wrong” direction: in the moving-ego model, it is not time that moves, but the observer. Yet,

these seemingly whimsical views of time are conceptually well-motivated, and provide a template for thinking of, and expressing, different notions of time.

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¹ See, e.g., Miller and Johnson-Laird (1976: 375pp.) and Lyons (1977: 718): “The spatialization of time is so obvious and so pervasive a phenomenon in the grammatical and lexical structure of so many of the world’s languages that it has been frequently noted, even by scholars who would not think of themselves as subscribing to the hypothesis of localism.”

² See Yu (1998: 110). Further examples of vertical time metaphors are *shang.ban.tian* (upper.half.day) ‘morning; forenoon’ vs. *xia.ban.tian* (lower.half.day) ‘afternoon’ and *yue.tou* (month.head/top) ‘the beginning of the month’ vs. *yue.di* (month.bottom) ‘the end of the month’.

³ See also Jäkel (1995: 200), who provides examples of verticality such as *That concept was above me* and *It went over my head* as illustrations of the orientational metaphor MENTAL CLOSENESS IS SPATIAL CLOSENESS and MENTAL DISTANCE IS SPATIAL DISTANCE.

⁴ See *The Linguist List* (4.3.1996). Unlike Toba, Taos does not however have a cyclic concept of time. Also other South-American Indian languages have been reported to arrange time according to visibility: Jaqaru, Kawki and Quechua. It is also claimed that in Classical Greek the past was in front and the future behind, which, however, no longer applies to Modern Greek.

⁵ Yu (1998: 100-104) provides, amongst others, the following examples:

- | | | |
|----|---------------------------------|----------------|
| a. | <i>zhan¹.nian</i> | <i>qian.tu</i> |
| | look ahead.think of | front.road |
| | ‘think of the future’ | |
| b. | <i>hui.xiang</i> | |
| | turn around.think | |
| | ‘think back; recollect; recall’ | |

⁶ At the same time, Hausa also uses the face-to-face perspective. For example, the future time in ‘the rest of the report is still to come’ is seen as facing the observer and the rest of the report that is still to come is described as being located behind its first part, which has already come.

⁷ The French and Italian examples were kindly been pointed out to me by my sister-in-law, Maria Radden.

⁸ See e.g., Cassirer and Koschmieder (see Vater 1994: 31), Smart (1949), Fillmore (1971), Clark (1973), Traugott (1974, 1975, 1978), Miller and Johnson-Laird (1976), Lakoff (1993), and Lakoff and Johnson (1980, 1999).

⁹ Lakoff (1993: 240) describes the relationship between a destination and the activity performed there as metaphoric, PURPOSES ARE DESTINATIONS, but Radden (2002: 424) argues that the relationship is more appropriately described as metonymic, i.e., PLACE FOR ACTIVITY.

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