

Antonio Pamies-Bertrán and Wang Yuan

The spatial conceptualization of time in Spanish and Chinese

Abstract: There is a general consensus about the existence of a cognitive transfer by which we conceive time in terms of space, witnessed by the recurrence of this metaphor in many languages. We can distinguish two theoretical trends in the treatment of this conceptual metaphor: those based on universalistic apriorisms and those based on more relativistic and empirical assumptions. While the first tend to extrapolate from English, reducing this metaphor to very few basic models with a natural motivation, the second privilege Amerindian languages, with empirical data which do not fit in such speculative universals. This contrastive work on the two typologically distant languages Spanish and Chinese confirms the cross-linguistic productivity of other space-to-time associations (*reversed time*, *mirror time*, *vertical time*, *cyclic time*). Though our results show more similarities than differences in the overall available inventory, some specific divergences between Chinese and Spanish are also noted.

Keywords: cognitive linguistics; linguistic typology; grammatical metaphor; space-to-time metaphor; Chinese language; Spanish language, phraseology

Introduction

Time is a complex concept which is the productive source domain of many metaphors (Piñel López 2011, Piñel López 2012) and figurative collocations (Novodvorski 2016), but it is also an important target domain, which is the topic of this work. Traditionally, linguistics has studied the conceptualization of *time* into verbal *tenses* (e.g., Benveniste 1966), paying less attention to lexical and phraseological units, which were later taken into account by cognitive linguistics (e.g., Fillmore 1982; Lakoff 1993). Some languages have a rich *tense* system (e.g., Romance family) and others have limited inflections (Japanese, English), or even none (Chinese), whereas *time* is a semantic category whose expression may involve many different linguistic correlates. The fact that Chinese does not have conjugations produces the misleading feeling of a “language without time” (cf. Lu 2019: 1), although, in reality, such languages do not exist, since all have lexical and/or

grammatical means to encode temporal specifications alien to conjugation: particles, aspects, modes, adverbs and prepositions (cf. Anscombre 1993, Anscombre 1996; Sinha and Bernárdez 2015: 315; Le Guen 2017: 464), not to mention the nouns and adjectives whose meaning is explicitly “temporal” (e.g., *time*, *chronological*, *late*, *early*, *recent*, *new*, *before*, *after*, *now*, *young*, *old*, *ancient*, *year*, *eternity*, etc.). Besides these literal instruments, figurative language has developed its own strategies, which are based on an analogy with space. Although some languages, such as Aymara and Quechua, have the same word (*pacha*) to designate space and time as a single concept (Núñez and Cornejo 2012), languages generally show a conceptual hierarchy, in which time is indirectly conceptualized by means of space (Haspelmath 1997: 18). Languages create a figurative “space” which may be “occupied” by events that *take place* in it, at a certain distance (distal, proximal...), speed (slow, fast...) and direction (forwards, backwards, downwards...) (cf. Mellado Blanco 2011).

We can distinguish two main trends in the theoretical studies on the space to time metaphor: those based on universalistic apriorisms (dominant in psycholinguistics), and those based on more relativistic assumptions (dominant in anthropological linguistics and linguistic typology). Since the empirical data brought out by the latter do not coincide with certain assumptions of the former, a detailed comparison between two typologically distant languages can be enlightening in this respect. Some studies on Chinese have been carried out in the field of experimental psychology, though they reach strikingly divergent conclusions. As for Spanish, existing literature is only recent (Mellado Blanco 2011; Piñel López 2011, Piñel López 2012; Ruiz Gurillo 2012; Zieliński 2012; Dawood Al-Khari 2016; Ruiz Surget 2017; Krohn 2018; Pamies 2019) and we have no knowledge of previous contrastive studies on the Chinese–Spanish linguistic pair.

1 Universal motivation or cultural specificities?

According to Fauconnier and Turner (2008: 4) the space to time metaphor constitutes a semantic universal:

Time as space is a deep metaphor for all human beings. It is common across cultures, psychologically real, productive and profoundly entrenched in thought and language.

From a sensory point of view, only the present can be experienced directly, while the past is a representation of memory, and the future is a product of imagination. Although, in the field of physics, Einstein’s theory of relativity merged time

and space, linguists agree that, in the folk worldviews reflected by languages, the conceptualization of time is organized by analogy with space (cf. Clark 1973; Scott 1989; Lakoff 1993; Dahl 1995; Haspelmath 1997; Yu 1998, Yu 2012; Gentner et al. 2002; Fauconnier and Turner 2008; Radden 2011; Brown 2012; Moore 2006, Moore 2014). Since metaphor is the result of a mapping from a conceptual source domain onto a target domain (Lakoff and Johnson 1980), the universality of the space to time analogy has a natural psychological basis, as a sub-class of the *orientational metaphor* (cf. Lakoff and Johnson 1980: 14, 41–46, and Lakoff and Johnson 1999: 139, 151), motivated by a recurring dynamic pattern of our perceptual interactions and motor programs that structure our experience (Johnson 1987: xiv).¹ According to Hong et al. (2017), the development of temporal perception in childhood appears after that of spatial perception, always remaining much weaker.

A universal sensorial and psychomotor motivation would give rise to two basic mappings: in one of them, time moves towards us (*moving time*), whereas, in the other one, we are moving through time (*moving ego*) (Lakoff and Turner 1989: 44–45). Both archi-metaphors place events on a horizontal axis, relative to the moment of the speech act (Clark 1973; Lakoff and Johnson 1999), thus, some authors consider them as two variants of the same model called *time is motion* (cf. Gentner et al. 2002; Ahrens and Huang 2002; Fauconnier and Turner 2008; Evans 2007: 751; Huang 2016). According to this view, time would be conceptualized either as a mobile object (time is a moving entity) or as a static background, where events are moving (time is a landscape) (Lakoff 1993; Yu 1998; Lakoff and Johnson 1999). Both mappings are deictic, since they locate events in relation to the “now” of every speech act, just as demonstrative pronouns locate things in relation to the speaker’s “here”. A third model of space-time metaphor is opposed to both: the non-deictic, or *relative*, one, where the events are locating each other mutually, e.g., *before the birth of Jesus Christ* (Haspelmath 1997: 24).

As far as linguistic anthropology is concerned, Whorf already considered that TIME, being *a substance without form*, needs to be understood in terms of a better structured concept, a function that would correspond to SPACE (Whorf 1956: 119). But, at the same time, he rejected the universality of the category of TIME when he affirmed that the Hopi language lacked any expression of it, because its lack of abstraction would deprive it of *imaginary spaces* (Whorf 1956: 57, 102, 117). Later, a study on Hopi by Malotki refuted this idea (Malotki 1983: 22–24), thanks to the inclusion of spatial-temporal metaphors in its criteria. For example, words

¹ Although Fauconnier and Turner (2008: 9–10) would consider the source as a more complex entity, in which two conceptual domains (in this case, space and motion) are *blended* or *conceptually integrated*.

like *yep*, *yuk*, and *pep* (literally ‘here’, ‘until here’, ‘there’) also have a temporal figurative meaning, equivalent to ‘now’, ‘until this moment’, and ‘then’. Anyway, according to relativism, to consider only the above-mentioned models (*moving time* and *moving ego*) would be too reductionist (Bourdin 2014). If space itself is perceived in a variable way, how could its projection on time be universal? (Hong et al. 2017: 1680; Le Guen 2017: 453). For example, Levinson (1997) distinguishes between languages with anthropocentric (or even egocentric) spatial categories, with relative localization with respect to the speakers themselves, and languages with objective spatial categories, with absolute localization with respect to the topographic environment (e.g. Tzeltal in America or Guugu Yimithirr in Australia). Consequently, their temporal metaphors inherit this peculiar system of location, which is not anthropocentric (cf. Brown 2012). As opposed to the universality derived from biological and psychomotor constraints, local cultures would be the main catalyzer of specific particularities (Boroditsky et al. 2010; Núñez and Cornejo 2012; Bourdin 2014: 35).

2 Orientation and dynamics of temporal metaphors

2.1 The moving time model is a figurative pattern in which time moves horizontally, whereas the reference ego is static: the past is behind and the future is ahead (Clark 1973: 49; Lakoff and Turner 1989: 44; Haspelmath 1997: 59; Lakoff and Johnson 1999; Gentner et al. 2002; Evans 2007: 751; Radden 2011: 30).

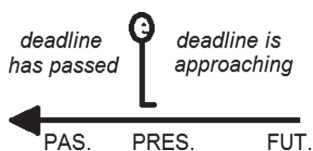


Fig. 1: The *moving time* model in English
(adapted from Radden [2011: 30] and Evans [2007: 751]).

2.1.1 This model exists in Chinese, where it would even be the ‘fundamental’ scheme for some researchers (e.g., Yu 1998; Ahrens and Huang 2002; Zhang 2003; Shi 2004).

- *qù nián* 去年 (*go year) ‘last year’;
- *wèi lái* 未来 (*not come) ‘future’;

- *lái chūn* 来春 (***come** Spring) ‘next Spring’;
- *lái rì* 来日 (***come** day) ‘days incoming’;
- *shí guò* 时过 (*time **pass**) ‘passing of time’ (Hong et al. 2017: 1692);
- *lái shì* 来世 (***come** world) ‘in next life’;
- *chūn qù qiū lái* 春去秋来 (*Spring go Autumn **come**) ‘Spring has gone and Autumn will come’;
- *shí bù wǒ dài* 时不我待 (ZCD)² (*time neg. 1prs **wait**) ‘time waits for nobody’.³

2.1.2 Spanish makes great use of this model. Words such as *pasado* (*‘passed’ ‘past’) and *porvenir* (*‘to+come’ ‘future’) are also derived from this archi-metaphor, which underlies also the syntactic combinations of displacement verbs such as *pasar* (‘pass’), *venir* (‘come’) *avicinarse* (‘approach’), and *llegar* (‘arrive’) (Mellado Blanco 2011; Pamies 2019).

- *con el andar de los tiempos* (*with the **walk** of the times) ‘as time goes by’;
- *las huellas del tiempo* (*the **footprints** of-the time) ‘the visible consequences of age’;
- *llegó la hora de la verdad* (***arrived** the hour of truth) ‘the moment of truth has come’;
- *tiempo atrás* (*time **behind**) ‘long time ago’ (Mellado Blanco 2011);
- *una carrera contra el tiempo* (*a **race** against the time) ‘a big hurry’;
- *con el paso del tiempo* (*with the **passage** of time) ‘as time goes by’ (Dawood 2016);
- *ya está aquí la Navidad* (*already **is here** Christmas) ‘it’s almost Christmas time’;
- *las elecciones están de camino* (*the elections **are on way**) ‘there will be elections soon’ (Krohn 2018);
- *la semana que viene* (*the week that **comes**) ‘next week’;
- *mi juventud ya pasó* (*my youth already **passed**) ‘my youth is over’;
- *en días venideros* (*into days **incoming**) ‘in future times’;
- *el cambio que se acerca* (*the change that is **SELF approaching**) ‘the change to come’;
- *la primavera ha llegado* (*the Spring has **arrived**) ‘Spring is here’;

2 *Zaixian chengyu da cidian* 在线成语大辞典 (Chinese dictionary of Cheng yu) <http://cy.5156edu.com/> (accessed 11 February 2020).

3 List of abbreviations: [*] = literal word for word translation / **V** = verb / **V^{INF}** = verb in infinitive / **V^{GER}** = verb in gerund / **PAS** = past moment / **PRES** = present moment / **FUT** = future moment / **ANT** = anteriority / **POS** = posteriority / **PL** = plural marker / **PERF** = perfective marker / **POSS** = possession marker / **ACC** = accusative marker / **SELF** = reflexive marker / **NEG** = negative marker / **PRS** = grammatical person / **CLASSIF** = classifier.

- *ya le **llegará** su castigo* (*yet 3PRS-DAT will.**arrive** his punishment) ‘his punishment will arrive’;
- *cuando **llega** la vejez* (*when **arrives** old age) ‘in old age’.

This imaginary movement underlies also many Spanish proverbs, e.g.:

- *todo lo que el tiempo **trae**, el tiempo se lo **lleva*** ‘all what time **brings**, time **takes** it away’;
- *tiempo presente, al mentarlo ya es **ausente*** ‘present time, just mentioned is already **absent**’;
- ***vuela** el tiempo de corrida, y **tras** él va nuestra vida* ‘time **flies** running, and **behind** him **goes** our life’;
- *el tiempo **vuela** sin alas* ‘time **flies** with no wings’;
- *tiempo **ido**, nunca más **venido*** ‘time **gone**, never **came back**’;
- *tiempo que se **marchó**, pájaro que **voló*** ‘time **gone**, bird that **flew away**’;
- *tiempo, palabras y piedras **no tienen vuelta*** ‘time, words and stones **cannot come back**’.

(Martínez Kleiser 1993 [1953]: 691–693)

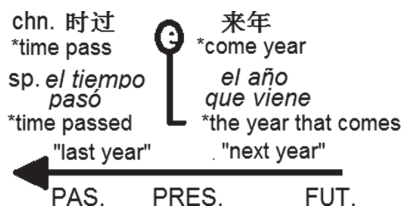


Fig. 2: The *moving time* model in Chinese and Spanish.

2.2 The *moving ego* model represents time as a static line, and the reference *ego* is moving along this line, where PAST IS BEHIND AND FUTURE IS AHEAD (Clark 1973: 50; Lyons 1977: 691; Lakoff and Turner 1989: 44–45; Lakoff and Johnson 1999; Evans 2007: 753). This pattern is also called *moving observer*, *egocentric time*, *moving entity* or *moving event* since the point of view may be in the event itself (cf. Bender and Beller 2014: 355).

This model is often considered to be predominant in English (cf. Gentner et al. 2002; Boroditsky et al. 2010), e.g., *we go through the years/in the weeks ahead of us* (Haspelmath 1997: 59). The literal reference to space can in turn be the object of metonymic somatisms, as it occurs not only in several American languages (Bourdin 2014: 40) but also in English, where *front* is associated with the future and *back* with the past (e.g., *look back*: ‘think about something that happened in the past’). The English periphrasis of immediate future [*be going to*

V^{INF}] can also be considered as an instantiation of this metaphoric model. French language takes even more advantage of this pattern, by splitting it between *aller* ('go') as an auxiliary of future (*je vais manger* 'I am going to eat') and *venir* ('come') as an auxiliary of immediate past (*je viens de manger*: 'I come from eat: 'I have just eaten') (Pamies 2019).

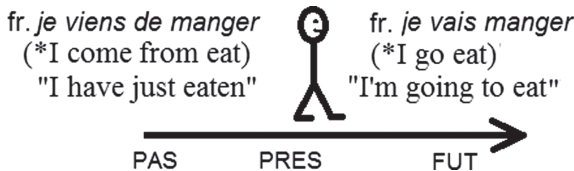


Fig. 3: The *moving ego* model in French.

2.2.1 In Chinese, there are abundant grammatical metaphors in which the protagonists and/or the events are “moving” towards the future, along a static temporal axis:

- *zhān niàn qián tú* 瞻念前途 *look.forward thinking ahead travel, ‘think about the future’ (Yu 1998: 99–104);
- *wǒmen yǐjīng jìnrù le èrshíyī shìjì* 我们已经进入了二十一世纪 *1PRS-PL already enter PERF twenty-one century, ‘we have already entered the twenty-first century’ (Ahrens and Huang 2002: 501–502);
- *huíguò* 回顾 *look-back ‘remember the past’;
- *huíshǒu* 回首 *turn-head (by extension ‘remembering the past’).

This archi-metaphor is very productive in Chinese, although Huang (2016: 42) notes that certain cases of subject omission make it difficult to be distinguished from the previous pattern (*moving time*). The verbal periphrases in which a verb equivalent to ‘go’ is followed by another verb (with a temporal value of immediate future) also belong to this model, as the periphrasis *qù V* [*go V]:

- *qù chī fàn* 去吃饭 (*go eat rice) ‘be about to eat’⁴;
- *wǒ lǎolao jiā zài xīběi, wǒ shàng wǒ lǎolao jiā shuì qù* [我姥姥家在西北, 我上我姥姥家睡去] (*apud.* Zhang 2013) (*1PRS grandma house be west north, 1PRS up 1PRS grandma house sleep go) ‘my grandmother’s house is in the northwest and I am going to sleep there’.

⁴ Nowadays, *chī fàn* 吃饭 just means ‘eat’, in general, but, etymologically, it is a compound word with the noun ‘rice’, as we transcribe it in the literal translation, in order to show the source domain of each figurative element.

However, the word *hòu* ('behind'/'backwards'), with a value of immediate past, is exclusive of another model that will be commented on later (Lü 1984, *apud.* Shi 2004: 9).

2.2.2 In Spanish, the MOVING EGO temporal metaphor is also very productive (Mellado Blanco 2011; Ruiz Surget 2017). This model includes the periphrastic immediate future [*ir a V*], almost identical to the Chinese one⁵ and to the English construction [*be going to V*]:

- **voy a jubilarme pronto** (*1PRS.**go** at retire-1PRS.ACC soon) 'I'm going to retire soon';
- **vamos a pasarlo bien** (*we.**go** at pass-it well) 'we'll have fun'.

Besides, it motivates many figurative expressions, such as:

- **acercarse a la cincuentena** (***approach**-SELF at the fifties) 'be almost 50 years old';
- **a cada paso** (*at each **step**) 'very often' (Mellado Blanco 2011);
- **de camino** (*of **path**) 'in passing';
- **de paso / de pasada** (*of **passing**) 'in passing';
- **en seguida** (*in **followed**) 'immediately' (Ruiz Gurillo 2011);
- **llegar a los cuarenta** (***arrive** at the fourty) 'reach the age of 40' (Ruiz Surget 2017);
- **ya dejamos atrás esta época**; (*we already let **behind** this period) 'it is past stuff' (Krohn 2018);
- **ir para viejo** (***go** for old) 'get old';
- **alcanzar la edad de jubilación** (***reach** the age of retirement) 'get old enough to retire';
- **llegar a viejo** (***arrive** at old) 'to survive a long time';
- **llegar a fin de mes** (***arrive** at end of month) 'make ends meet';
- **entrar en una nueva era** (***enter** in a new era) 'start a completely new period';
- **de ahora en adelante** (*from now in **ahead**) 'from now on';
- **nos esperan años difíciles** (*difficult years **wait** for us) 'we shall endure difficulties';

⁵ If we disregard the formal fact that Spanish inserts the preposition *a* ('to'/'at'), and that Chinese can reverse freely the order between the auxiliary and the main verb (Dong 2005). In Spanish, the reversed form would be allowed only in some emphatic contexts, such as *a trabajar me voy esta noche, no esta tarde* ('I am going to work tonight, not this evening'), whereas in Chinese 去 ('go') the "reversed" variant could even be the most frequent. Zhang (2013) calculates that 57% of the sentences with the construction [qù V] of his literary corpus are temporal periphrases, compared to 83% for the reversed form [V qù].

- *tener toda la vida por **delante*** (*to+have all the life **ahead**) ‘be still very young’;
- *dejar algo para más **adelante*** (*to let something for more **ahead**) ‘postpone something’.

In discourse, we may find examples which seem to reverse the *moving ego* path, e.g. *mirando hacia atrás* (*looking backwards) or *volver la vista atrás* (*turn the view backwards): ‘think about the past’, but, in reality, this fact confirms that the *moving ego* was walking forward (since it has to turn its head back). In this model, not only the past is behind, but the mere fact of thinking about it is reprehensible, so that it appears mostly in negative or derogatory contexts, a kind of exception which confirms the rule.

- *lo que más deseas, lánzate a por ello, **sin mirar atrás***⁶; (‘what you want the most, go for it, **without looking back**’)
- *no es bueno **mirar al pasado** si ello impide nuestra **marcha hacia el futuro***⁷; (*not is good **look at the past** if it prevents our **walk towards the future**).

As in the famous poem by Antonio Machado:

- *y al **volver la vista atrás** / se ve la senda que nunca / se ha de volver a pisar*⁸ (*and when **turning the view back** / we see the path that never / should be stepped again).

Other words based on a temporal inversion, such as *retrotraer* (‘bring back’), *retroceder* (‘step back’), and also *retrógrado* and *regresivo* (both meaning etymologically *walking-backwards), are often derogatory in their temporal meaning. Such discursive inversions of the *moving ego* path assume that the “normal” attitude would be to look forward. Paraphrasing Lakoff and Johnson (1980), this occasional feature could even actualize a more general *orientational metaphor*, underlying the etymology of the word *progress* (FORWARDS IS GOOD, BACKWARDS IS BAD).⁹

- *los votantes que se quedaron en sus casas no quieren **volver al pasado** o **hacia ideas ya fracasadas*** (*the voters who stayed at their homes not want **go.back** to-the past or to ideas already failed)¹⁰;
- *la ministra de Sanidad española dice que, en tema de aborto, **retroceder a la ley española de 1985 es retroceder a la Edad Media*** (*the Minister of Health

⁶ Begoña Sastre: *Curso para ser optimista*. Amazon Kindle ed. (*apud.* Google.books, accessed 27 October 2019).

⁷ ABC 02 June 1997 *apud.* [CREA] www.rae.es (accessed 27 October 2019).

⁸ *Proverbios y cantares* (XXIX).

⁹ From Latin *prōgredi* ‘walk forwards’, *American Heritage Dictionary of the English Language*, <https://ahdictionary.com> (accessed 31 January 2020).

¹⁰ *El Salvador Hoy*, 18 March 1997, *apud.* [CREA] www.rae.es, (accessed 27 October 2019).

Spanish says that, as for abortion, **step.back** to the law Spanish of 1985 is **step.back** to the Age Middle)¹¹;

- *una petición de cárcel que nos **retrotrae** a la época de la Dictadura* (*a request for prison that **takes-back** us to the time of the Dictatorship)¹²;
- *queremos hacer una revolución social porque este país es aún muy **retrógrado*** ('we want make a social revolution because this country is still very **retrograde**')¹³.

These examples do not really entail any “regressive” temporality, on the contrary, they are only occasional de-automatizations of the *moving ego* metaphor.



Fig. 4: The *moving ego* model in Chinese and Spanish.

2.3 SEQUENTIAL TIME: the above-mentioned metaphors are deictic, because they ‘localize’ the events with reference to the moment of the speech act, and therefore to the speaker, inheriting the egocentrism of spatial deixis. On the contrary, the *relative* models, also called *temporal sequences* (Radden 2011) or *field-base framed* (Moore 2011: 760), form ‘objective’ sequences of SIMULTANEITY, ANTERIORITY or POSTERIORITY, independent of the speaker’s ‘now’ and insensitive to any change of perspective. In this system, events are bound to a date in a stable line, in which they are also linked to each other. Therefore, events localize each other in a symmetrical and bidirectional way: *Spring comes before Summer* = *Summer comes after Spring*.

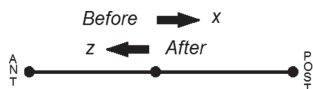


Fig. 5: The *sequential time* model.

¹¹ *El confidencial* 15 February 2019, <https://religion.elconfidencialdigital.com/opinion/daniel-tirapu/malestar-social-fondo/20190214191934027197.html> (accessed 31 January 2020).

¹² *ElMundo* 15 September 2009 <https://www.elmundo.es/elmundo/2009/09/15/opinion/19309343.html> (accessed 16 July 2020).

¹³ Pedro Pablo Kuczynski (*El País*, 08 August 2016), https://elpais.com/tag/fuerza_popular/a/3 (accessed 27 October 2019).

2.3.1 Chinese can also express the chronology of events by means of a *relative* spatial representation:

- *yì zhōu qián* 一周前 (*one week **ahead**) ‘one week before’ (Chen 2014);
- *sì diǎn hòu* 四点后 (*four point **behind**) ‘after four o’clock’ (Jeng and Jiang 2010);
- *qiánqī* 前妻 (***ahead**-wife) ‘ex-wife’;
- *qiáncháo* 前朝 (***ahead**-dynasty) ‘the previous dynasty’;
- *hòurén* 后人 (***behind**-person) ‘the descendents / new generations’;
- *qiánrén* 前人 (***ahead**-person) ‘the ancestors / the previous generations’;
- *érshí shìjì hòu bàn yè* 二十世纪后半叶 (*twenty century **behind** half-leaf) ‘the second half of the twentieth century’;
- *érshí shìjì qián bàn yè* 二十世纪前半叶 (*twenty century **ahead** half-leaf) ‘the first half of the twentieth century’;
- *hòu xiandai zhuyi* 后现代主义 (***behind** now-period SUF.ism)¹⁴ ‘postmodernism’;

The productivity of this model gives rise to symmetrical pairs of lexical antonymic compounds:

- *yǐhòu* 以后 (*from-**behind**) ‘after’;
- *yǐqián* 以前 (*from-**ahead**) ‘before’;
- *qiányīn* 前因 (***ahead**-because) ‘cause’;
- *hòuguǒ* 后果 (***behind**-fruit) ‘consequence’.

It also motivates many Chinese idioms:

- *hòushì 1* 后世 (***behind**-world) ‘next generations’;
- *hòushì 2* 后世 (***behind**-world) ‘the afterlife’ [in Buddhism];
- *hòushì 3* 后事 (***behind**-thing) ‘concrete things after someone’s death’;
- *qiánshēn 1* 前身 (***ahead**-body) ‘the former life [in Buddhism]’;
- *qiánshēn 2* 前身 (***ahead**-body) ‘the previous state of a material’;
- *hòupà* 后怕 (***behind**-fear) ‘be afraid after the accident’;
- *shēngqián shēnhòu míng* 生前身后名 (*birth-**ahead** body-**behind** fame) ‘reputation before and after death’.

2.3.2 In Spanish, temporality can also be expressed with non-deictic pseudo-locative metaphors, a mechanism that is also syntactically productive and semantically symmetrical (Mellado Blanco 2011; Krohn 2018):

- *mayo viene antes que junio = junio viene después de mayo*
(*May **comes before** than June = *June **comes after** of May)
‘May is prior to June’ = ‘June is later than May’;

¹⁴ *Zhuyi* (lit. *main-meaning) is a suffix, borrowed from Japanese, equivalent to English *-ism*.

- *este año el verano se ha adelantado* ≠ *este año el verano se ha retrasado*
(*this year Summer has SELF advanced ≠ *this year Summer has SELF lagged)
'Summer has come early this year' ≠ 'Summer has come late this year';
- *debe pagar por adelantado* ≈ *no debe retrasarse en el pago*
(*you.must pay by advanced ≈ not you.must not lag in the payment)
'you must pay in advance' ≈ 'don't be late in paying'.

An important common feature between Chinese and Spanish is that, literally, the words that express anteriority denote frontal anatomical locations, while those that express posteriority denote dorsal anatomical locations, reversing the *moving time* pattern. However, this does not prevent the bidirectionality of the figurative meaning: only the literal sense causes a deceptive resemblance with another model that also has “the past in front” (*regressive time*), but where time is moving towards the speaker from behind, whereas *sequential time* is bidirectional, non-deictic and static.



Fig. 6: The *sequential time* model in Chinese and Spanish.

Of course, languages whose categorization of space is not deictic, but geocentric (cf. Levinson 1997) only possess metaphoric time references independent of the moment of speech.

2.4 The REVERSED TIME model is not mentioned in Lakoff and Johnson's typology (1980). We can call it that way because it works like the *moving time* model, but in the opposite direction, so that PAST IS AHEAD AND FUTURE IS BEHIND (Gifford 1986; Núñez and Sweetser 2006: 402, 415–416; Flumini and Santiago 2013). It is a deictic system, in which time “moves” with respect to a static ego that “looks to the past”. For example, in Aymara, the word *nayra* (‘before’) literally means ‘eye’/‘sight’/‘ahead’; while *qhipa* (‘after’) literally means ‘behind’. This mapping would be cognitively related to sight: the future is the most “invisible” of the times, since we can only “see” what has already happened (Bourdin 2014: 41).

This model not only transcends the “universalist” dichotomy, but contradicts to a great extent its arguments, based on the supposed identity of the *moving time* model with the natural fact that we walk forward, leaving behind what we have already seen, in a allegedly biological analogy (e.g. *LIFE IS A JOURNEY*) (cf. Lakoff and Turner 1989: 17–18). This regressive model also exists in Quechua (Gifford 1986; Hurtado de Mendoza 2001). On the other hand, in Yucatec Maya, *pach* (‘front’ / ‘before’) can metaphorically represent the future, the children, the grandchildren, etc., and *táan* (‘back’ / ‘after’) can represent the past, the ancestors, as in Aymara, whereas there are no words meaning exclusively ‘before’ or ‘after’ (Le Guen 2014: 466). In Asia, a *regressive* temporal metaphor has also been described for Isbukun Bunun¹⁵ (Jeng and Jiang 2010: 6–12).

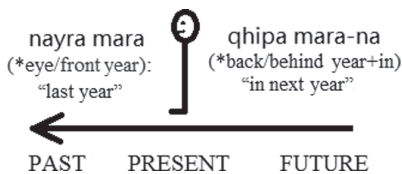


Fig. 7: The *reversed time* model in Aymara (adapted from Núñez and Sweetser [2006] and Bourdin [2014]).

2.4.1 This horizontal regressive model is not exclusive to more or less “exotic” languages. In Mandarin, the word *qián* (前 ‘ahead’) also has a temporal figurative sense (‘before’) and *hòu* (后 ‘rear’) has the opposite value (‘after’), therefore, both of them point to the opposite direction to that of the *moving time* patterns. In fact, etymologically, the words *qián* (前 ‘ahead’) and *xiān* (先 ‘before’) were synonymous (Zhang 2003). Hence the temporal meaning of expressions such as *zì chūnjié yǐlái* (自春节以来 ‘from Spring-festival to-come’): ‘from [Chinese] New Year festival to now’) or *cóng jīn yǐhòu* (从今以后 ‘from today to-rear’ ‘from now on’) (Shi Peixin 2004).

On the other hand, a peculiarity of Chinese is that the word *hòu* (后 ‘rear’) always refers to the future, being “specialized” in the *regressive time* since it never participates in the *moving ego*, where ‘behind’ represents the past. There is a striking asymmetry with respect to *qián* 前 (‘ahead’) which participates in many models with different orientations (Lü 1984, *apud.* Shi 2004). This makes the literal meaning of these sequences so opaque and misleading for foreign learners, since *hòulái* (后来 ‘behind come’) really means ‘after’.

- **qiántiān** 前天 (***ahead**-sky ‘the day before yesterday’)
- **hòutiān** 后天 (***behind**-sky ‘the day after tomorrow’)

¹⁵ An Austronesian language from the center of Taiwan.

- *hòu huì yǒu qī* 后会有期 (***behind** find have date) ‘see you soon’
(Ahrens and Huang 2002: 499).

We also find this pattern in Chinese proverbs:

- *qiánshì búwàng, hòushì zhī shī* 前事不忘，后事之师 (***ahead**-thing not forget, behind thing POS master) ‘the lessons of the ancestors must not be forgotten, they will be our guide in the future’.

The high productivity of this model in Chinese contradicts the idea that the perception of time passing would be universally oriented towards the future.

2.4.2 In principle, regressive time is not a functional feature of modern Spanish, despite its undeniable traces in some lexical etymologies. Even the temporal adverb *antes* and the conjunction *antes de* (‘before’) come from Lat. *ante*, which meant (‘ahead / in front’). Symmetrically, the temporal adverb *después* (‘after’) comes from Lat. *post* (‘behind’).¹⁶ These words were originally *regressive* space-to-time metaphors, as were also their derivatives (*anterior*, *antiguo*, *antecesor*, *antepasado*, *antecedente*, *posterior*, *postrero*, *posteridad*, *póstumo*, *postrimerias*...), but, synchronically, the current temporal meanings of these words would no longer be *regressive* but *relative*, because they function in a non-deictic and bidirectional way.

Besides, those Spanish examples are not deictic, whereas the *reversed time* of Chinese is “hybrid”: the same temporal metaphor can be deictic or relative, and only the words order identifies its contextual value (Han and Liu 2007), e.g.:

DEICTIC	RELATIVE
<i>yì tiān hòu</i> 一天后 (*one day behind) ‘in one day’	<i>hòu yì tiān</i> 后一天 (* behind one day) ‘the next day’;
<i>yì tiān qián</i> 一天前 (*one day ahead) ‘one day ago’	<i>qián yì tiān</i> 前一天 (* ahead one day) ‘the previous day’;
<i>yì nián hòu</i> 一年后 (*one year behind) ‘in one year’	<i>hòu yí nián</i> 后一年 (* behind one year) ‘the following year’;
<i>yì nián qián</i> 一年前 (*one year ahead) ‘one year ago’	<i>qián yí nián</i> 前一年 (* ahead one year) ‘the previous year’.

¹⁶ Which, in turn, goes back to the Indo-European roots *ant-* (‘in front of’) and *apo-* (‘far from’), cf. ‘Indo-European Roots Appendix’, *American Heritage Dictionary*, <https://www.ahdictionary.com/word/indoeurop.html> (accessed 25 October 2019).

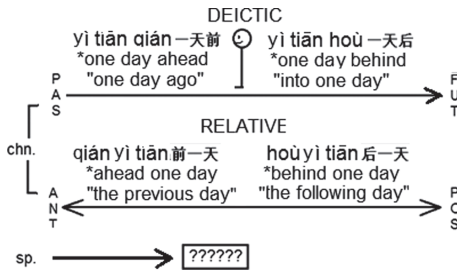


Fig. 8: The *reversed time*, a model which does not exist in modern Spanish, and which is split in two variants in Chinese.

2.5 The model MIRROR TIME is a space-to-time metaphor that Radden (2011: 26) calls *double-sided perspective* citing as an example some French and Italian constructions, where the same spatial meaning is projected symmetrically over time in two opposite directions:

- it. *domani l'altro* (*tomorrow **the other**: 'the day after tomorrow') vs. *l'altro ieri* (***the other** yesterday: 'the day before yesterday');
- fr. *arrière grand-père* (***rear** big-father: 'great-grandfather') vs. *arrière petit-fils* (***rear** small-son: 'great-grandson').

The English terms *great-grandfather* and *great-grandson* could fit into the same patterns than these French examples.

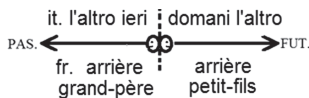


Fig. 9: Examples of *mirror time* in French and Italian, according to Radden (2011).

However, the Italian examples are not very convincing, since the component *l'altro* is not literally 'spatial', and *arrière-grand-père* is not deictic, contrary to what the graph suggests. Nevertheless, we may find a grammatical example which clearly corresponds to a systemic and deictic mirror metaphor: the two opposite Catalan verbal periphrases, where the same spatial verb, *anar* ('go'), can "move" the protagonist both towards the future and the past. In this language, *vaig menjar* (*I **go** eat) means 'I ate', while *vaig a menjar* (*I **go** to eat) means 'I will eat' (Pamies 2019).

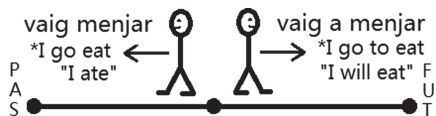


Fig. 10: The *mirror time* model in Catalan.

2.5.1 The *mirror time* metaphor also exists in Chinese. The verb *lái* 来 (*come) works as a periphrastic auxiliary of future in certain *moving time* patterns, such as *wǒ lái xiǎng yìxiǎng* 我来想一想 (*I **come** think one think) 'I'm going to think about it'. However, unlike English, this same verb can also localize the action in a period going from a point in the past until the present (Dong 2005). In the following example, the verb *lái* appears twice, first referring to the future and then to the past:

- *wǒmen lái huíyì yínián lái de gōngzuò* 我们来回忆一年来的工作 (*1PRS-PL **come** return remember one year **come** POSS work-make) 'we're going to rethink the work of last year'¹⁷

2.5.2 In Spanish, there is a productive pattern of *mirror time*, in which the verb *volverse* ('return') means metaphorically 'become'. In *volverse viejo* (*return old 'get old'), *volverse loco* (*return crazy 'go nuts'), there are implicitly two events: an initial and a final state, necessarily different, expressed by the same verb of movement which, literally, expresses the opposite direction (one only returns from where one has gone).¹⁸ This temporal meaning of *volverse* coexists with the inverse image in *volver a la infancia* (*return to the childhood). The target domain of any change of state is in the opposite temporal sphere to that of the source domain of the verb *volver*. In other languages, such as English, both situations also involve metaphorical verbs of movement, but in opposite directions (*go crazy* vs. *come back to childhood*), while the same Spanish verb points to both directions:

- *me siento como si volviera a la infancia en un lugar tan apasionante, impaciente por descubrir sus secretos*¹⁹ (*I feel as if **returning** to the childhood in such an exciting place, eager for discovering its secrets);

¹⁷ Corpus BCC: bcc.blcu.edu.cn (accessed 27 November 2019).

¹⁸ Etymologically, sp. *volverse* comes from Lat. *volvere* ('to turn'), but the Spanish reflexive variant *volverse* means literally "turning back" (*girar la cabeza, el torso, o todo el cuerpo, para mirar lo que estaba a la espalda*, DLE # 27 (accessed 16 July 2020).

¹⁹ *Los viajeros.com*: 'The big apple – diarios de viajes de USA' (10 October 2014) (<https://www.losviajeros.com/index.php?name=Blogsandb=11087andmode=displayandid=11087andnewlang=spanish>) (accessed 24 February 2020).

- *uno se vuelve viejo, cuando deja de mirar a las esposas de los amigos, para empezar a mirar a las hijas de los amigos*²⁰ (*one **returns** old when instead of looking at his friends' wives, he begins look at his friends' daughters').

There is, however, an important difference between both languages: the Chinese model is deictic (like the Catalan one), while the Spanish model is relative.

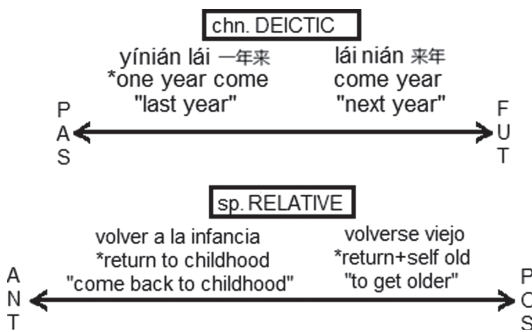


Fig. 11: The *mirror time* model in Chinese and Spanish, opposed to each other by the feature [+/- deixis].

2.6 All the previous mental representations function “horizontally”. Among the poles of anthropocentric orientation, the horizontal dimension (FRONT/BACK) plays a more important role than the vertical one (UP/DOWN) in the conceptualization of time (Fillmore 1982: 39–49). However, there is also a VERTICAL TIME model, which organizes time on a vertical spatial axis (Radden 2011: 4–5).

Time is linear and static, and the events ‘locate’ each other into slots along its axis in both directions, thus, this pattern is not deictic but relative. For example, in Quechua, *hawa* (‘up’) also implies POSTERIORITY and *ura* (‘down’) implies ANTERIORITY. This also affects some verbs equivalent to ‘go up’ and ‘go down’ (Fäller and Cuéllar 2009: 6–8). Brown (2012: 6–7) describes a vertical model in Tzeltal, which involves words (literally) equivalent to eng. *ascend/descend* or *uphill/downhill*.

2.6.1 In Chinese, the importance of this model is such that it has been the subject of several specific studies (Scott 1989; Lan 1999; Dong 2004; Xu 2016; Jeng and Jiang 2010; Boroditsky et al. 2010; Chen 2007; Hong et al. 2017). This archi-metaphor works like in Quechua, but in the opposite direction. The word *shàng* 上

²⁰ <http://encontrarse.com/notas/pvernota.php3?nnota=20487encontrarse.com>, 12 March 2008 (accessed 24 February 2020).

(‘up’) always designates anteriority, while *xià* 下 ‘down’ designates posteriority, therefore, the temporal location of the events is independent of the moment of the speech act (Scott 1989: 298–300). For example:

- *shàng bàn tiān* 上半天 (***up** half day) ‘morning’;
- *xià bàn tiān* 下半天 (***down** half day) ‘afternoon’;
- *shàng yìnián* 上一年 (***up** one+year) ‘the previous year’;
- *xià yìnián* 下一年 (***down** one+year) ‘the following year’.

(Jeng and Jiang 2010)

It is not a property of some isolated phrasemes, but a productive association of ideas which functions also in “free” syntax, since the metaphorical senses of *shàng* and *xià* can form syntagmatic compounds on a regular predictable basis:

- *shàng bànchǎng* 半场 (***up** half field) ‘first part of the game’;
- *xià bànchǎng* 半场 (***down** half field) ‘second part of the game’;
- *shàng bàn yè* 半夜 (***up** half night) ‘the period between dusk and midnight’;
- *xià bàn yè* 半夜 (***down** half night) ‘the period between midnight and dawn’.

This also affects verbs such as *xiàlái* 下来 *come down, *xiàqù* 下去 *go down, and *jiàng* 降 *fall, when they indicate posteriority, and, symmetrically, the verb *shàngsù* 上溯 ‘go up [again]’ when it indicates anteriority:

- *gǔ shēngwù de yītǐ biàncéng huàshí bǎocún xiàlái* 古生物的遗体变成化石保存下来 (*ancient birth thing poss remains-body turn into chemical stone keep **down-come**) ‘The corpse of past lives has been preserved by becoming a fossil’ (Wei 2019);
- *wǒmen de jīngshén yào yídài yídài chuánchéng xiàqù* 我们的精神要一代一代传承下去 (1PRS-PL POSS spirit must one-generation one-generation inherit **down-go**) ‘Our spirit-being must be inherited from generation to generation’;
- *zhèxiē biāoběn shàngsù shǐqián xiàqì míngqīng hé mínguó* 这些标本上溯史前, 下迄明清和民国 (*this-PL specimen **up-mount** history forward, below-arrive Ming Qing and people republic) ‘These specimens can be traced back to the prehistoric period, reaching as far as the Ming and Qing dynasties and the Republic of China’.²¹

A peculiarity of Chinese *vertical time* is that it can be relative or deictic, depending on the lexical units involved in the construction, as observed by Scott (1989: 298–300). This author adds that the deictic interpretation works by default with the words ‘month’ (*yuè*) and ‘week’ (*xīngqī*), and that, also with the year (*nián*) or the semester (*xuéqī*), the deixis is generally the only interpretation available

²¹ Corpus CCL (access 23 October 2019).

(Scott 1989: 299–301). After a search in the electronic corpus,²² our data confirm this statement for *months*, *weeks*, *semesters* and *centuries*; however, they refute it for *years*, where the relative variant clearly predominates (see table 1).²³

Tab. 1: Relation between deixis and temporal metaphor with *shàng* / *xià*.

	VERTICAL TIME	deictic	relative	ambig.	fals.pos.
WEEK	<i>shàng xīngqī</i> 上星期 (*up star-date) ‘last week’	403			
	<i>xià xīngqī</i> 下星期 (*down star-date) ‘next week’	460	1	1	
MONTH	<i>shàng gè yuè</i> 上个月 (*up CLASIF month) ‘last month’	263		1	
	<i>xià gè yuè</i> 下个月 (*down CLASIF month) ‘next month’	211	3		
SEMESTER	<i>shàng xuéqī</i> 上学期 (*up semester) ‘last semester’	35	4	1	10
	<i>xià xuéqī</i> 下学期 (*down semester) ‘next semester’	41	14	1	
YEAR	<i>shàng yìnián</i> 上一年 (*up one-year) ‘last year’	6	33		109
	<i>xià yìnián</i> 下一年 (*down one-year)	1	39		4
CENTURY	<i>shàng shìjì</i> 上世纪 (*up century) ‘last century’	87			
	<i>xià shìjì</i> 下世纪 (*down century) ‘next century’	3			

An experimental psycholinguistic study by Boroditsky et al. (2010) attempted to demonstrate that native Chinese tend to think vertically about time (*vertical*

22 [BCC] BLCU Corpus Center: 150.000 millions of tokens (bcc.blcu.edu.cn) and [CCL] Center for Chinese Linguistics PKU (Xiandai Hanyu) 509 million of tokens, ccl.pku.edu.cn:8080/ccl_corpus/ (accessed 05 February 2020).

23 In order to make possible the individual verification of each token, we limited ourselves to the sub-corpus of literary works, the BCC corpus (3 billion tokens). In the cases we call *false positives*, the co-occurrence between the components is a coincidence (e.g. when a sentence ends with *shàng* or *xià*, in adverbial function, while the temporal noun following it belongs to another sentence). The cases we call *ambiguous* are those that can be deictic or not, depending on the context. There were very few in the corpus, most of them in translated texts of dubious representativeness.

mind). However, one can object that establishing such a relationship would be justified if verticality were the only Chinese space-to-time pattern, but, since this language also has “horizontal” patterns, just as productive, why would these not also be able to represent such a world view? In fact, another investigation, based on statistical frequencies in textual corpora (Chen 2007) calculates that only 36% of the space-to-time metaphors are “vertical”. Another research on hand gestures used by native speakers to express time (Li 2014) observes that the most frequent gesture corresponds to a horizontal type (*moving ego*). Hong et al. (2017) conducted another test, with non-linguistic clues, to identify the main dimension, and they also concluded that the horizontal dimension is the dominant cognitive pattern in Chinese.

2.6.2 In Spanish, we can find isolated samples of a vertical model inherited from Latin, where, as in Chinese, ANTERIORITY IS UP and POSTERIORITY IS DOWN. These roles are preserved in the meaning of the verb *descender* (*go+down) and of the nominalized adjectives *ascendiente* (*going+up) and *descendiente* (*going+down), which retain their Latin temporal value to designate kinship (ANCESTORS ARE UP, SUCCESSORS ARE DOWN).

- *Los judíos **descienden** de Isaac y los árabes, de Ismael* (*the Jews **descend** from Isaac and the Arabs from Ishmael);²⁴
- *Una vieja boutade dice que los mexicanos **descienden** de los aztecas, los peruanos de los incas y los rioplatenses de los barcos* (*an old boutade says that the Mexicans **descend** from the Aztecs, the Peruvians from the Incas and the Argentinians from the ships).²⁵

By metonymy, *descender* extends its temporal value beyond the biological domain, such as doctrinal or etymological origins and transformations, e.g. in the meaning defined by the Academic Dictionary as *dicho de una cosa: derivarse, proceder de otra*²⁶ (‘said about a thing: to be derived, to come from something else’).

- *la derecha más directamente **descendiente** del franquismo*²⁷ (‘the right wing most directly **descending** from Francoism’);
- *el término **desciende** del persa medio frawahr o frohar, mediante disimilación de frawash o frawaxsh...*²⁸ (‘the term **descends** from the Middle Persian *frawahr* or *frohar*, by dissimilation of *frawash* or *frawaxsh*’);

²⁴ www.katehon.com, *apud. esTenTen18* (accessed 29 September 2019).

²⁵ <http://absta.info>, *apud. esTenTen18* (accessed 01 March 2020). This pun is a good example of the space-to-time polysemy of the vertical displacement.

²⁶ DLE (2019) (accessed 29 September 2019).

²⁷ Pío Moa: ‘Qué fue y qué es el antifranquismo, en pocas palabras’, www.piomoa.es (accessed 01 March 2020).

²⁸ <https://es.wikipedia.org/wiki/Faravahar>, *apud. esTenTen18* (accessed 01 March 2020).

- *Apache OpenOffice **desciende** de OpenOffice.org, un proyecto que tiene como base inicial a StarOffice*²⁹ ('Apache OpenOffice **descends** from OpenOffice.org, a project whose initial base was StarOffice').

This is also the case with some expressions coined by historians, such as *Alta Edad Media* ('High Middle Ages') and *Baja Edad Media* ('Low Middle Ages'), the former being earlier than the latter, as well as *Alto Imperio Romano* ('High Roman Empire') and *Bajo Imperio Romano* ('Low Roman Empire') (Pamies 2019). Mellado Blanco (2011: 47) quotes the idiom *A altas horas de la madrugada* (*at high hours of dawn: 'very early in the morning'), which could also be associated with this scheme. Something similar happens in Chinese, where *shànggǔ shídài* (上古时代 *up-ancient time) means 'the archaic period'.

The figurative verticality of the verb *caer* ('fall') also situates events in time,³⁰ expressing an imminent future in figurative expressions such as *estar al caer*.³¹ We cannot apply here Lakoff and Johnson's analysis called FORESEEABLE FUTURE EVENTS ARE UP (1980: 16), since the relevant image motivating this model is the direction of the movement, not its possible origin, as shown by the proper English examples quoted by these authors: *all coming up events are listed in the paper / what's coming up this week*, etc., whereas Spanish examples of *caer* ('fall') are oriented conversely, associating posteriority with a lower space:

- *los invitados están al caer* (*the guests are at-the **falling**) 'the guests are about to arrive';
- *este año Navidad cae en jueves* (*his year Christmas **falls** on Thursday);
- *este yogur caducará pronto* (*this yogurt will-**fall** soon) 'this yogurt will soon expire'³².

When they are afraid of being late, the Spaniards may say *el tiempo se nos echa encima* (*time is falling over us) or *la noche se nos echa encima* (*night is falling over us). Symmetrically, they use the verb *remontar* (lit. *mount.again) to refer to the opposite temporal direction: 'date back / go back'.³³ In the vertical axis there is no reliable opposition between the movements of time and those of the ego, since forms like *remontarse* may express both things.

²⁹ https://es.wikipedia.org/wiki/Apache_OpenOffice, *apud. esTenTen18* (accessed 29 September 2019).

³⁰ 'corresponder a un determinado día o período del año', DLE 2019 (accessed 29 September 2019).

³¹ 'estar a punto de llegar, sobrevenir o suceder', DLE 2019 (accessed 29 September 2019).

³² *caducar* 'expire' (< Lat. *cadūcus* < *cadēre* 'fall'), DEL 2019 (accessed 29 September 2019).

³³ 'retroceder hasta una época pasada', DLE 2019 (accessed 29 September 2019).

- *una devoción mariana que se remonta a 1712*³⁴ (*a Marian devotion that **mounts** to 1712);
- *habría que remontarse a la noche de los tiempos para encontrar una película en blanco y negro en La Primera de TVE*³⁵ (*we would need **mount** to the night of times in.order.to find a white and black movie in the first [channel] of TVE).

This vertical model is a reminiscence of classical Latin, where *supra* (*over) also meant 'before', and *infra* (*under) also meant 'after' (Mellado Blanco 2011: 45; Short 2016: 386), and where Lat. *ascendentes* (*the ascending) meant 'ancestors', thus, *descendentes* (*the descending) meant 'successors'³⁶. On the other hand, there is a striking coincidence between Spanish and Chinese in the expression of the temporal approximation. In both languages, the adverbs meaning literally 'above' and 'below' correspond to 'before' and 'after' when referring to an approximate amount of time. In general, this variant is limited in Spanish to a small series of lexical units and idioms, being much less productive than in Chinese. Besides, the direction of the targets is different, since the upper position is posterior to the lower one in this pattern, since MORE IS UP AND LESS IS DOWN.

- *poco importa un mes arriba o un mes abajo*³⁷ (*it matters little a month **up** or a month **down**) 'an approximate date, within a range of one month before or one month after';
- *niánlíng wǔshí shàngxià* 年齡五十上下 (*year-age five-ten **up-down**) 'approximately fifty years';
- *yí gè yuè shàngxià* 一个月上下 (*one CLASSIF. month **up-down**) 'approximately one month';
- *wǔ diǎn shàngxià* 五点上下 (*five point **up-down**) 'round about five o'clock'.

Another cross-linguistic difference, probably the main one, is that, whereas the Spanish vertical time is relative, the Chinese model is split in accordance to the unit of time to which it is applied. As we have already seen, it is deictic with the weeks, the months and the centuries, but relative with the years, the semesters, or the fractions of periods.

³⁴ www.hoy.es/v/20100428/caceres/devocion-mariana-remonta-1712-20100428.html [28 April 2010] (accessed 29 September 2019).

³⁵ www.diariodeleon.es/articulo/que-hacer-hoy/peliculas-blanco-negro/20030825000000674967.html [25 August 2003] (accessed 09 October 2019).

³⁶ This image also motivates words such as *suced*, *sucesor*, *sucesión* (<Lat. *sub+cedere* 'walk under').

³⁷ <https://www.lne.es/occidente/1528/obras-navia-tapia-llevan-medio-ano-paradas-adjudicacion/485852.html> [25 January 2007] (accessed 09 October 2019).

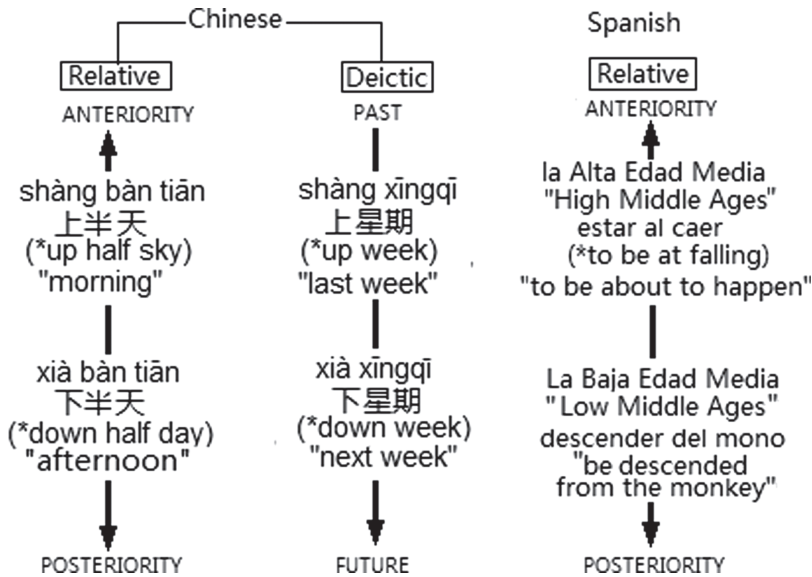


Fig. 12: The vertical time in Chinese and Spanish.

2.7 The CIRCULAR TIME model: Another pattern that also transcends the standard cognitivist dichotomy is the "cyclic time", which has been described in Toba (Klein 1981), Quechua (Bourdin 2014) and Yucatec Maya (Le Guen 2014). In Toba³⁸, Radden considers that the cognitive motivation of this mapping would be related to visual perception: our present is "visible", while the past becomes increasingly opaque as it approaches the remote future, which is "invisible" by definition. But the wheel keeps turning, so that same position also becomes the starting point of an approaching march of the future towards the present (Radden 2011: 10–11). The past becomes increasingly opaque as it approaches the furthest possible position from the present, at which it becomes completely obscure, so that, since such property is shared with the most remote future, that same position also becomes the starting point of the approaching march of the future towards the present. An argument in favor of this analysis is the analogy between this organization of time and the system of spatial demonstratives and the classifiers of Toba, which also distinguishes distances and orientations according to their degree of (in)visibility (Bourdin 2014: 52–53).

³⁸ Guaycurú family, Chaco (Argentina).

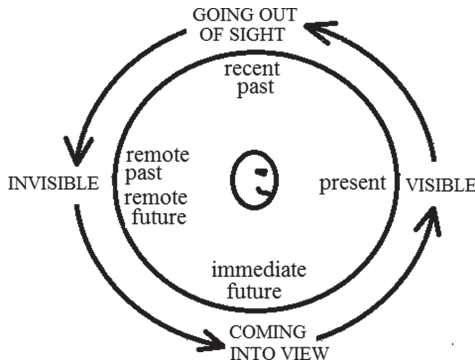


Fig. 13: Circular time in Toba (adapted from Radden [2011]).

In Quechua, a circular model has also been observed by Fállar and Cuéllar (2009: 8–9), where (imaginary) upward and downward movements are followed by a “return” that begins a new cycle: *tutaman-ta wichay* ‘morning rise’ ≠ *inti haykuy uray* ‘night entry descent’ ≠ *p’unchaw-qa kuti-rpa-mu-n-ña* ‘the day returned’.

2.7.1 The cyclical model is not limited to Amerindian languages, examples are also found in Chinese and Spanish, although they actualize it in a different way. The most evident case of conceptualization of time as a wheel is that of repeated actions, which occur after another one but, at the same time, refer to previous episodes (cf. Bender and Beller 2014: 346).

In Chinese there is an aspectual periphrasis in which the verb *huí* 回 (‘come back’) functions as an auxiliary of another verb to express the repetition of the action:

- *huí jiàn* 回见 (***return** see) ‘see you soon’;
- *wǎn huí* 挽回 (***take return**) ‘recover’;
- *wǎn huí nán yǒu* 挽回男友 (***take return** man friend) ‘strive to be back with the boyfriend she broke up with’.

The verb *huí* 回 can also have this value before an adjective or a noun:

- *huí cháo* 回潮 (***return** humid) ‘sun-dried house that became wet again’ (by extension, it can refer to the reappearance of bad habits that had already disappeared).

In other compounds, proverbs or *chengyu*, it is common to find *huí* 回 (‘return’) and *huán* 还 (‘give back’) with an iterative meaning:

- *qǐ sǐ huí shēng* 起死回生 (***raise die return** live) ‘save the moribund’;
- *huán sù* 还俗 (***return** layman) ‘stop being a monk’ / ‘secularization’;
- *fǎn lǎo huán tóng* 返老还童 (***return** old give-back child ‘return to youth from old age’) (‘recovering the health or mental state of youth’);

- *jiè shī huán hún* 借尸还魂 (*borrow corpse **return** soul) ‘reincarnate in someone else’s body’ (also, as a derogatory extension: the reintroduction, under a new name, of something bad that was supposed to have disappeared)³⁹.

2.7.2 In Spanish there is also a “circular time” archi-metaphor, whose most productive example is also an iterative aspectual periphrasis, with the verb ‘return’ (*volver*), followed by the preposition *a* and a second verb in infinitive, conceptualizing the repetition of an event as a regression to a previous point of the same trajectory (Pamies 2019).

- *Putin quiere cambiar la constitución para **volver** a presentarse a las elecciones*⁴⁰ (*Putin wants change the constitution in-order-to **return** to present+SELF to the elections) ‘Putin wants to change the constitution so that he can stand for election again’;
- *beben y beben y **vuelven** a beber* (*they+drink, they+drink and they **return** to drink) ‘they drink again and again’.⁴¹

Since the verbal aspect expresses the *internal time* of the event (Comrie 1976: 3), Spanish possesses several aspectual periphrases, all of them literally spatial:

- the INCHOATIVE *ponerse a V^{INF}* (e.g. *ponerse a dormir* *put-SELF at sleep ‘begin to sleep’),
- the PROGRESSIVE *ir V^{GER}* (e.g. *van mejorando* ‘they are improving’),
- the CONTINUATIVE *seguir V^{GER}* (e.g. *seguir durmiendo* *follow sleeping] ‘keep on sleeping’),
- the ITERATIVE *volver a V^{INF}* (e.g. *volverse a dormir* *return at sleep ‘sleep again’),

besides the temporal periphrasis [*ir a V^{INF}*] ‘be going to sleep’. As auxiliaries, these literally spatial verbs modify the internal temporal development of other actions in which there is not necessarily displacement. In the inchoative periphrasis, the event is conceptualized as a place where one enters [*ponerse a V^{INF}*] (*put-SELF at V^{INF}), in the progressive as a place where one stays [*estar V^{GER}*] (*be V^{GER}), in the continuative as a place where one advances behind something [*seguir V^{GER}*] (*follow V^{GER}) and in the iterative as a place to come back to [*volver a V^{INF}*] (*return at V^{INF}). The linking of all of them completes a circular path: during the OUTWARD TRIP, the future is ahead (‘go’, ‘follow’), but, during the RETURN TRIP, the past is

³⁹ *Hanyu da cidian* 汉语大辞典2017, <http://www.hydc.com/cy/> (accessed 29 November 2019).

⁴⁰ <https://www.rtve.es/alacarta/audios/las-mananas-de-rne-con-inigo-alfonso/putin-rusia-elecciones-constitucion/5535646/> 11-03-2020 (accessed 15 March 2020).

⁴¹ Famous children’s Christmas song.

ahead ('return'), completing an imaginary circle. Many figurative expressions are based on this temporal metaphor:

- *me vas a volver loco* (*you will **return** me crazy) 'you are driving me crazy', where time is moving forwards for the agent ('you') but backwards for madness ('return') within the same sentence;
- *volver a las andadas* (***return** at the **wanderings**) 'misbehave again', where an event is already represented as a forward movement ('wandering') whereas its repetition is conceptualized as a backwards movement ('return');
- *estar de vuelta* [de algo] (***be coming back** [from something]) 'be disillusioned or mistrusting, after having believed in something', where the beliefs are implicitly conceptualized as an 'outward journey', but disbelief is 'coming back home'. E.g. *el año pasado parecía usted menos optimista; en sus declaraciones daba la impresión de no tener ya ilusiones, de estar de vuelta*⁴² (last year you seemed less optimistic; in your statements you gave the impression of no longer having any illusions, of **being coming back** ['disheartened']).

Therefore, the expression of iteration in Spanish is supported by a specific temporal archi-metaphor, which is a variant of the cyclic time model. On the other hand, there is an important similarity with Chinese since both languages use iterative periphrases formed with the same literal displacement verbs: chn. 回 / sp. *volver* ('return').



Fig. 14: The circular time in Chinese and Spanish.

To recap: Chinese has seven space-to-time metaphoric patterns, five of which also work in Spanish. The biggest difference is the *regressive time*, which does not exist in Spanish, since the few examples we have found do not seem really

⁴² *ABC Cultural*, 09 August 1996, *apud*. corpus CREA (accessed 27 October 2019).

representative of this model (see 3.4). There is another, albeit minor, difference in the *vertical time*, which is syntactically productive in Chinese, where it may be deictic or relative, whereas in Spanish, it has remained only in isolated lexical units, as an etymological relic of Latin (*descender*, *remontar*, *caer*, *caducar*), whose temporal function is never deictic.

Tab. 2: The typology of space-to-time metaphor in Chinese and Spanish.

	moving time	moving ego	sequential time	regressive time	mirror time	vertical time	cyclic time
chn.	+	+	+	+	+	+	+
esp.	+	+	+	–	+	?	+

As a general trend, although not as a rule, deictic models tend to be unidirectional and relative models tend to be bidirectional, except, obviously, those that are bidirectional by definition (e.g. *mirror time*).

Tab. 3: Inner features for each model in Chinese and Spanish.

	moving time	moving ego	sequential time	regressive time	mirror time	vertical time	cyclic time
DEICTIC	+	+	–	chn+/-	sp –	+	chn+/-
BIDIRECTIONAL	–	–	+		sp +	–	+

3 Conclusions

In general, an empirical typology of space-to-time metaphors would go beyond the few models initially described by Lakoff and Johnson (1999: 142–146), with different geometrical forms and rejecting the idea that all these metaphors share the same direction (as stated by Fauconnier and Turner [2008: 8], for example). On the other hand, several different models of spatialized time can coexist in the same language (horizontal and vertical, monodirectional and bidirectional, deictic and relative), and the productivity of one archi-metaphor does not exclude or diminish the relevance of the others. Therefore, the question quoted by Yu (does the ego face toward the future or past in Chinese?) (2012: 1335) entails a (false) disjunctive, because why to assume such a forced choice when languages add and combine diverse mechanisms? For example, Alverson claims that Chinese is opposed to English because it *looks to the past*, because the regressive model

predominates, while Yu (1998: 99–104) argues exactly the opposite: Chinese and English *look at the future*. In turn, Borodotsky et al. (2010) conclude that “verticality” opposes Chinese to English, while Hong et al. (2017) claim the opposite.

In discourse, nothing prevents combining different models, even in the same sentence. For instance, citing the Chinese example *huáxià dàdì hé shí sòng zǒu chūtiān bù rù xiàtiān ne* 华夏大地何时送走春天步入夏天? (*China great land when time see-off go spring step enter summer? ‘when will China say goodbye to spring and step into summer?’), Yu (1998) observes that time and ego can move at the same time in opposite directions. In this imaginary farewell, China “looks” at the future by *entering* summer, and at the past by *saying goodbye* to spring. In sp. *la semana que viene me voy a comprar un coche* (‘next week I am going to buy a car’), the observer advances towards the future in the main clause (‘I am **going** to buy’), but the future runs towards him in the subordinate clause (*the **coming** week), thus combining different vectorial models in the same sentence. In *la UE y Gran Bretaña están negociando a contrarreloj* (‘the EU and Britain are negotiating against the clock’), the negotiators are racing towards the future whereas the deadline is running towards them from the future.⁴³

The comparison between these two languages shows the existence of at least seven types of space-to-time archi-metaphor in Chinese and five in Spanish, although sometimes updated in different ways. These data do not fit completely into the reductionist vision of the pioneering theories of cognitivism, already criticized for that feature (cf. Núñez and Sweetser 2006: 414 or Bourdin 2014: 55–56). However, at the same time, seven models is not a very high number either, and the fact that five of them are common to a pair of genetically distant languages, with an important productivity, is rather a confirmation of the general ubiquity of the space-to-time metaphor. Another question would be whether any of these models is universal or not, something that cannot be resolved by theoretical speculation, without a wide and diverse empirical support. It would be necessary to collect accurate analyses about many languages, since there may be cryptotypes that only a detailed contrastive description can identify in each case.

References

- Ahrens, Kathleen & Chu-Ren Huang. 2002. Time passing is motion. *Language and Linguistics* 3(3). 491–519.
- Alverson, Hoyt. 1994. *Semantics and experience: Universal metaphors of time in English, Mandarin, Hindi, and Sesotho*. Baltimore: Johns Hopkins University Press.

⁴³ Cf. also Haspelmath (1997: 60).

- Anscombe, Jean-Claude. 1993. Sur/sous: de la localisation spatiale à la localisation temporelle. *Lexique* 11. 111–145.
- Anscombe, Jean-Claude. 1996. Partitif et localisation temporelle. *Langue française* 109. 80–103. https://www.persee.fr/doc/lfr_0023-8368_1996_num_109_1_5335.
- Bender, Andrea & Sieghard Beller. 2014. Mapping spatial frames of reference onto time: a review of theoretical accounts and empirical findings. *Cognition* 132(3). 342–382.
- Benveniste, Émile. 1966. *Problèmes de linguistique générale*. Paris: Gallimard.
- Boroditsky, Lera, Orly Fuhrman & Kelly McCormick. 2010. Do English and Mandarin speakers think about time differently? *Cognition* 118(1). 123–129.
- Bourdin, Gabriel L. 2014. En los tiempos de Ñaupá: el cuerpo y la deixis temporal en lenguas originarias de Sudamérica. *Península* 9(1). 33–58.
- Brown, Penelope. 2012. Time and space in Tzeltal: Is the future uphill?. *Frontiers in Psychology* 3. 212.
- Chen, Cheng. 2014. A contrastive study of time as space metaphor in English and Chinese. *Theory and Practice in Language Studies* 4(1). 129–136.
- Chen, Jenn-Yeu. 2007. Do Chinese and English speakers think about time differently? *Cognition* 104(2). 427–436.
- Clark, Herbert H. 1973. Space, time, semantics and the child. In Timothy E. Moore (ed.), *Cognitive development and the acquisition of language*, 27–63. New York: Academic Press.
- Comrie, Bernard. 1976. *Aspect: an introduction to the study of verbal aspect and related problems*. Cambridge: Cambridge University Press.
- Dahl, Øyvind. 1995. When the future comes from behind: Malagasy and other time concepts, and some consequences for communication. *International Journal of Intercultural Relations* 19. 197–209.
- Dawood Al-Khari, Ahmed S. 2016. *El enfoque cognitivo-conceptual del tiempo en la metáfora: un estudio comparativo entre el árabe y el español*. Granada: University of Granada dissertation.
- Dong, Weiguang [董为光]. 2004. 汉语时间顺序的认知基础 *Hanyu Shijian shunxu de renzhi jichu* [The Chinese conceptualization of time revisited]. 当代语言学 *Dangdai Yuyan Xue* [Contemporary Linguistics] 2. 110–115.
- Dong, Yuwen [董于雯]. 2005. 现代汉语表达将来的手段 *Xiandai hanyu biaoda jianglai de shouduan* [Expressions of the future time in modern Chinese]. Sichuan: University of Sichuan master thesis.
- Evans, Vyvyan. 2007. How we conceptualise time: language, meaning and temporal cognition. In Vyvyan Evans, Benjamin K. Bergen & Jörg Zinken (eds.), *The Cognitive Linguistics reader*, 733–764. London: Equinox.
- Fállar, Martina & Mario Cuéllar. 2009. Metáforas del tiempo en quechua. In *Actas del IV Congreso Nacional de Investigaciones Lingüístico-Filológicas* (CD-ROM). Lima: Universidad Ricardo Palma.
- Fauconnier, Gilles & Mark Turner. 2008. Rethinking metaphor. In Raymond W. Gibbs (ed.), *The Cambridge handbook of metaphor and thought*, 53–66. Cambridge: Cambridge University Press.
- Fillmore, Charles J. 1982. Towards a descriptive framework for spatial deixis. In Robert J. Jarvella & Wolfgang Klein (eds.), *Speech, place and action: Studies in deixis and related topics*, 31–59. New York: Wiley and sons.
- Flumini, Andrea & Julio Santiago. 2013. Time (also) flies from left to right... (if it is needed). In Andrew Wahlen et al. (eds.), *Proceedings of the 35th annual meeting of the Cognitive Science Society*, 2315–2320. St. Andrews: St. Andrews University.

- Gentner, Dedre, Imai Mutsumi & Lera Boroditsky. 2002. As time goes by: Evidence for two systems in processing SPACE > TIME metaphors. *Language and Cognitive Processes* 17(5). 537–565.
- Gifford, Douglas. 1986. Las metáforas temporales en aymara y quechua. *Winak* 2. 4–19.
- Han, Yuqiang & Bin Liu [韩玉强 & 刘宾]. 2007. 汉语空间隐喻时间中的 前、后 认知 *Hanyu kongjian yinyu shijian zhong de 'qian', 'hou' renzhi* [Conceptualization of *qian* and *hou* in the space-to-time metaphor in Chinese]. *修辞学习 Xiuci Xuexi* [Contemporary Rhetoric] 4. 15–20.
- Haspelmath, Martin. 1997. *From space to time: temporal adverbials in the world's languages*. Munich & Newcastle: Lincom Europa.
- Hong, Tian, He Xianyou, Richard Tillman, Xueru Zhao & Yumei Deng. 2017. The vertical and horizontal spatial-temporal conceptual metaphor representation of Chinese temporal words. *Psychology* 8. 1679–1692.
- Huang, Shuping. 2016. What is moving? A special case of Chinese time passing is motion. *Athens Journal of Philology* 3(1). 39–59.
- Hurtado de Mendoza, William. 2001. *Pragmática de la cultura y la lengua quechua*. Cusco: Centro de Estudios Rurales Andinos Bartolomé de las Casas.
- Jeng, Hengsyung & Haowen Jiang. 2010. The spatial and temporal conceptualizations of Isbukun Bunun. Paper presented at the fourth Conference on Language, Discourse and Cognition, National Taiwan University, 1 May 2010. http://www.owl.net.rice.edu/~hj3/pub/handout_CLDC.pdf.
- Johnson, Mark. 1987. *The body in the mind. The bodily basis of meaning, imagination, and reason*. Chicago: The University of Chicago Press.
- Klein, Harriet M. 1981. El futuro precede al pasado. La concepción toba del tiempo. *Maldoror* 16. 58–62.
- Krohn, Haakon S. 2018. Manifestaciones de la conceptualización del tiempo como espacio en español. *Filología y Lingüística* 44(1). 193–210.
- Lakoff, George. 1993. The contemporary theory of metaphor. In Andrew Ortony (ed.), *Metaphor and thought* (2nd edn), 202–251. Cambridge: Cambridge University Press.
- Lakoff, George & Mark Johnson. 1980. *Metaphors we live by*. Chicago: University of Chicago Press.
- Lakoff, George & Mark Johnson. 1999. *Philosophy in the flesh*. New York: Basic Books.
- Lakoff, George & Mark Turner. 1989. *More than cool reason: a field guide to poetic metaphor*. Chicago: University of Chicago Press.
- Lan, Chun [蓝纯]. 1999. 从认知角度看汉语的空间隐喻 *Cong renzhi jiaodu kan hanyu de kongjian yinyu* [A cognitive approach to spatial metaphors in Chinese]. *外语教学与研究 Waiyu Jiaoxue Yu Yanjiu* [Foreign Language Teaching and Research] 4. 7–15.
- Le Guen, Olivier. 2017. Una concepción del tiempo no-lineal en dos lenguas: el maya yucateco colonial y actual y la lengua de señas maya yucateca. *Journal de la Société des Américanistes*. N° Hors-série *Tiempos Mayas*.
- Levinson, Stephen C. 1997. Language and cognition: the cognitive consequences of spatial description in Guugu Yimithir. *Journal of Linguistic Anthropology* 7(1). 98–131.
- Li, Heng [李恒]. 2014. 汉语使用者时空隐喻手势的认知研究 *Hanyu shiyong zhe shikong yinyu shoushi de renzhi yanjiu* [Cognitive study of hand gestures in the space-to-time metaphor of native Chinese speakers]. *外语与外语教学 Waiyu Yu Waiyu Jiaoxue* [Foreign Language Teaching and Research] 6. 38–43.
- Liu, Ningsheng [刘宁生]. 1993. 语言关于时间的认知特点与第二语言习得 *Yuyan guanyu shijian de renzhi tedian yu di er yuyan xide* [Cognitive characteristics of time in language and second language acquisition]. *汉语学习 Hanyu Xuexi* [Chinese Language Learning] 5. 39–45.

- Lu, Wei-Lun. 2019. Time, tense and viewpoint shift across languages: A Multiple-Parallel-Text approach to tense shifting in a tenseless language. *Cognitive Linguistics* 30(2).
- Lü, Shuxiang [吕叔湘]. 1984. 语言里的不对称现象 *Yuyan li de bu duichen xianxiang* [Asymmetric phenomena in languages]. In *语文杂记 Yuwen zaji* [Essays on Chinese Language]. Shanghai: Shanghai Jiaoyu Chubanshe.
- Lyons, John. 1977. Deixis, space and time. *Semantics* 2. 636–724.
- Malotki, Ekkehart. 1983. *Hopi time: A linguistic analysis of the temporal concepts in the Hopi language*. Berlin: De Gruyter.
- Martínez Kleiser, Luis. 1993 [1953]. *Refranero general ideológico español* (3rd edn). Madrid: Real Academia Española.
- Mellado Blanco, Carmen. 2011. La conceptualización del tiempo a través del espacio en la fraseología española y alemana. In Carsten Sinner, Encarnación Tabares & Esteban T. Montoro (eds.), *Tiempo, espacio y relaciones espacio-temporales en la fraseología y la paremiología españolas*, 34–49. Munich: Peniöpe.
- Moore, Kevin E. 2006. Space-to-time mappings and temporal concepts. *Cognitive Linguistics* 17(2). 759–776.
- Moore, Kevin E. 2011. Ego-perspective and field-based frames of reference: Temporal meanings of front in Japanese, Wolof, and Aymara. *Journal of Pragmatics* 43. 759–776.
- Moore, Kevin E. 2014. *The special language of time: Metaphor, metonymy, and frames of reference*. Amsterdam: John Benjamins.
- Novodvorski, Ariel. 2016. As palavras-chave *tempo/tempo*: um estudo empírico-descritivo em corpus literário traduzido. *Letras & Letras* 32(1). 170–193.
- Núñez, Rafael & Carlos Cornejo. 2012. Facing the sunrise: cultural worldview underlying intrinsic-based encoding of absolute frames of reference in Aymara. *Cognitive Science* 36(6). 965–991.
- Núñez, Rafael & Eve Sweetser. 2006. With the future behind them: Convergent evidence from Aymara language and gesture in the crosslinguistic comparison of spatial construals of time. *Cognitive Science* 30(3). 401–450.
- Pamies, Antonio. 2017. Grammatical metaphor and functional idiomaticity. *Yearbook of Phraseology* 8(1). 69–104.
- Pamies, Antonio. 2019. Métaphore grammaticale et géométrie imaginaire du temps en français et en espagnol. *Analele Universității din Craiova* XXIII(1). 62–77.
- Piñel López, Rosa M. 2011. Las denominaciones de tiempo en la fraseología y paremiología españolas y alemanas. In Carsten Sinner, Encarnación Tabares & Esteban Tomás Montoro del Arco (eds.), *Tiempo, espacio y relaciones espacio-temporales en la fraseología y paremiología españolas*, 50–66. Munich: Peniöpe.
- Piñel López, Rosa M. 2012. Asociaciones conceptuales con el lema tiempo y su aparición y tratamiento en la fraseología española y alemana. *Verba Hispanica* 20(1). 279–294.
- Radden, Günter. 2011. Spatial time in the West and the East. In Mario Brdar, Marija Omazić & Višnja Pavičić Takač (eds.), *Space and time in language*, 1–40. Frankfurt: Peter Lang.
- Ruiz Gurillo, Leonor. 2012. Espacio y tiempo en las locuciones adverbiales del español. In Carsten Sinner, Encarnación Tabares & Esteban Tomás Montoro del Arco (eds.), *Tiempo, espacio y relaciones espacio-temporales en la fraseología y paremiología españolas*, 153–169. Munich: Peniöpe.
- Ruiz Surget, Alexandra A. 2017. La conceptualización del tiempo a través de la metáfora espacio-temporal con el verbo *llegar*. *Estudios de Lingüística Aplicada* 66. 173–203.

- Scott, Amanda. 1989. The vertical dimension and time in Mandarin. *Australian Journal of Linguistics* 9. 295–314.
- Shi, Peixin [史佩信]. 2004. 汉语时间表达中的前后式与来去式 *Hanyu shijian biaoda zhong de 'qianhou shi' yu 'laiqu shi'* [The form of *qian hou* and the form of *lai qu* in temporal expressions in Chinese]. *语言教学与研究 Yuyan Jiaoxue Yu Yanjiu* [Foreign Language Teaching and Research] 2. 9–16.
- Short, William M. 2016. Spatial metaphors of time in Roman culture. *Classical World* 10(3). 381–412.
- Sinha, Chris & Enrique Bernárdez. 2015. Metaphors, maps and fusions: space, time and space-time. In Farzad Sharifian (ed.), *The Routledge handbook of language and culture*, 309–324. New York: Routledge.
- Wei, Yizhen [魏义祯]. 2019. 也谈汉语时间表达的空间隐喻系统——[来/往] [前/后] [上/下] 的协调 *Ye tan hanyu shijian biaoda de kongjian yinyu xitong – 'lai/wang' 'qian/hou' 'shang/xia' de xietiao* [A further study of the spatial metaphor system of Chinese time expressions: coordination of *lai/wang*, *qian/hou* and *shang/xia*]. *语言教学与研究 Yuyan Jiaoxue Yu Yanjiu* [Foreign Language Teaching and Research] 4. 104–112.
- Whorf, Benjamin L. 1956. An American Indian model of the universe. In John B. Carroll (ed.), *Language, thought, and reality: Selected writings of Benjamin Lee Whorf*, 57–64. Cambridge (Mass.): MIT.
- Xu, Dan [徐丹]. 2016. 古汉语里的纵向时间表达 *Gu hanyu li de zongxiang shijian biaoda* [Vertical time expressions in ancient Chinese]. *语言科学 Yuyan Kexue* [Linguistic Sciences] 1. 1–10.
- Yu, Ning. 1998. *The contemporary theory of metaphor: A perspective from Chinese*. Amsterdam: John Benjamins.
- Yu, Ning. 2012. The metaphorical orientation of time in Chinese. *Journal of Pragmatics* 44. 1335–1354.
- Zhang, Jianli [张建理]. 2003. 汉语时间系统中的[前]、[后]认知和表达 *Hanyu shijian xitong Zhong de 'qian', 'hou' renzhi he biaoda* [Conceptualization and expression of *qian* and *hou* in the Chinese temporal system]. *浙江大学学报 (人文社会科学版) Zhejiang Daxue Xuebao (Renwen Shehui Kexue Ban)* [Journal of Zhejiang University (Humanities and Social Sciences)] 5. 84–91.
- Zhang, Li [张莉]. 2013. 的将来时制表达 *qu+VP he VP+qu de jianglai shizhi biaoda* [去+VP] 和 [VP+去] [The expression of future tense with {qu+SV} and {SV+qu}]. *湖州师范学院学报 Huzhou Shifan Xueyuan Xuebao* [Journal of Huzhou University] 5. 123–128.
- Zieliński, Andrzej. 2012. Gramaticalización de las expresiones espacio-temporales en español: el caso de las perífrasis de los verbos de movimiento. *Verba Hispanica* 20(1). 431–454.