TEMPORAL USES OF *TRƯỚC* AND *SAU*: AN ANALYSIS OF TEMPORAL FRAMES OF REFERENCE IN VIETNAMESE

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Abstract. This paper assesses the temporal meaning of *trước* and *sau* in Vietnamese, concerning the temporal frames of reference. The Vietnamese words *trước* and *sau* mean FRONT and BEHIND. They originally mean spatial directions with a deictic center. When transferred to the domain of time, they appear in three situations: 1. Expressing the 'future/past' meanings correlating to an absolute frame of reference that motivates dynamic and static temporal events; the orientation of the absolute frame of reference in Vietnamese is provided with the arrow of time; 2. Expressing the 'past/future' meanings correlating to an intrinsic frame of reference; this frame of reference applies to binary temporal relations that encompass deictic events and earlier/later relations. FRONT is mapped onto the past in both cases; 3. Expressing ternary temporal relations correlating to a relative frame of reference: we argue that two variants of the relative frame of reference proposed by Bender and colleagues cannot be applied to describe ternary temporal relations in Vietnamese. In this language, if G occurs in the future, FRONT is assigned to the past of G which is the V's future, and BEHIND to G's future; whereas if G occurs in the past, FRONT is assigned to the G's past, and BEHIND to G's future which is also Ego's past. The only difference between the intrinsic and the relative frame of reference in Vietnamese, therefore, is whether or not the Ground coincides with the Ego.

Keywords: *trước, sau*, Vietnamese, space, time, temporal frames of reference

1. Introduction

Temporal frames of reference have just become the object of Cognitive Linguistics in about two recent decades. Cognitive linguists have proposed numerous taxonomies of temporal frames of reference to describe temporal relations in many languages [2, 3, 5, 7, 8, 10, 11]; however, these results have not covered the case of Vietnamese. Otherwise, there have not been any works analyzing temporal frames of reference in this language. Therefore, in this paper, we analyze them in Vietnamese through the temporal uses of *trước* and *sau*, thereby contributing to developing the cognitive theory of temporal frames of reference.

The early accounts for temporal frames of reference are the results of attempts to get a mapping from spatial frames of reference to the domain of time [1–3, 5–8, 10, 11]. These accounts generally use the same conceptual components for construing temporal relations but

have different ways of combining the components [1]. The conceptual sources used to interpret temporal frames of reference encompass A-series, B-series, Moving Ego, and Moving Time.

The temporal frames of reference that we describe in this paper are metaphorical. We use the taxonomy proposed by Bender and colleagues [1, 2] as the background. After analyzing the differences between the domain of space and the domain of time and the differences and the similarities among other existing accounts of temporal frames of reference [1, 2], they claim that spatial frames of reference can map onto the domain of time, then use the spatial frame of reference terminologies proposed by Levinson [4] for characterizing temporal frames of reference. Their three temporal frames of reference are the absolute, intrinsic, and relative temporal frames of reference. For the convenience of analyzing temporal frames of reference in Vietnamese, we put a theoretical brief of these frames at the beginning of each subsection in Section 2.

A frame of reference, as developed by Talmy [9], is a coordinate system consisting of a Figure and a Ground that is used to determine the position of F[1] from a given perspective; this G may or may not coincide with an observer's viewpoint V. For example, in *The car is in front of the house*, the car is F; the house is G; G does differ from V.

Our paper focuses on characterizing the temporal meanings of *trước* and *sau* in Vietnamese, concerning temporal frames of reference. The words *trước* and *sau* are respectively to FRONT and BEHIND terms. Initially, they have spatial meanings with an Ego-centered reference point, in which *trước* means the space in front of a human body, and *sau* means the space behind a human body. When being transferred to the domain of time, these words appear in the expressions motivated by all the three temporal frames of reference, as we shall see.

The examples used in this paper are from the Vietnamese corpus at sketchengine.eu, Vietnamese Dictionary (Hoang et al., 2009), and given by the authors by the judgmental methodology. For each example, the word-to-word translation is given in double quotes, and a suggested free translation is given in single quotes.

In the following section, we will show the temporal uses of *trước* and *sau*, concerning the absolute temporal frame of reference (Subsection 2.1), the intrinsic temporal frame of reference (Subsection 2.2.), and the relative temporal frame of reference (Subsection 2.3). The last section of the paper presents our conclusions.

2.   Findings and discussions

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[1] The following abbreviations are used in the paper: F – Figure, G – Ground, V – observer viewpoint, SUBJ – subject, OBJ – object, FUT – future, PERF – perfect, DEM – demonstrative, PROG – progressive, PART – particle, QUAN – quantifier.

2.1.   'Future/past' meanings: temporal uses of *trước/sau* in the absolute frame of reference

This section illustrates how an absolute frame of reference is instantiated with FRONT/BEHIND vocabulary in Vietnamese. Let us begin with a brief of this frame of reference. According to Bender and colleagues [1, 2], the absolute frame of reference describes the binary temporal relation between two objects, in which an event F is in front of an event G, i.e., the event F is in the future of G. The orientation of this frame of reference is time itself and depends on cultural conventions. The corollary of this is that its FRONT varies across different languages and cultures. It may be in line with the arrow of time [2] or the opposite direction (like in Aymara language, Núñez & Sweetser [8]) or up-hill (Tenejapan Tzeltal language, Levinson [4]), and so on. The G's intrinsic front and the speaker's position in time are irrelevant for an absolute frame of reference.

With the above background, let us see the following examples in Vietnamese:

(1)   *Tương lai   đang   ở   phía trước*[2].

        "future   PROG   live   front"

        'The future is in front of (us).'

In (1), *trước* "front" means 'future'. The sentence describes the future as an object that is always ahead in the timeline. This fact shows that the future/past axis is metaphorically in line with the arrow of time.

Below is another example of this temporal use of *trước.*

(2)   *Trước mắt,   hãy   cứ   đợi   xem   đã*[3].

        "front eye   let's   still   wait   see   PART"

        'We must see and wait how things happen.'

 Being different from (1), which expresses a dynamic situation, (2) represents a static one. However, similar to (1), *trước* in (2) metaphorically means 'future'; exactly, it points to the temporal interval that begins right after the time of speech. Thus (1) and (2) are the absolute frame of reference cases, and in the Vietnamese language, as we have seen, FRONT is assigned in line with the arrow of time.

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[2] Source: https://app.sketchengine.eu (Accessed 20 July 2020).

[3] Source: Vietnamese Dictionary (Hoang et al., 2009, p. 1307)

By contrast, *sau* is used to express the past, as in the following example:

(3)   *Bỏ   lại   sau   lưng bao   tháng   năm   cuộc đời   tăm tối*⁴

"leave PART behind back QUAN   month   year   life   dark"

'Leaving the very dark period in his life behind'

For example (3) above, *sau lưng* "behind one's back" inherently means the space behind the human body. When being transferred to the domain of time, this expression refers to the Ego's past. The Ego is moving to the future with the future in front of the Ego. Therefore, the BEHIND/FRONT axis is mapped onto the past/future relation. This means that the temporal relation in (3) is structured by the Moving Time metaphor and motivated by the absolute frame of reference. In this case, the Ego coincides with G. It is moving ahead to the future, i.e., the Ego's moving direction is in line with the arrow of time.

To summarize, we have seen that temporal *trước* and *sau* in Vietnamese are metaphorically used to express the future and past in the absolute frame of reference. The orientation of the absolute frame of reference in this language is provided by the arrow of time.

2.2.   'Past/future' meanings: temporal uses of *trước/sau* in the intrinsic frame of reference

Bender and colleagues [1, 2] describe an intrinsic temporal frame of reference as a frame of reference, in which the ground object G is also the origo of the coordinate system. Its orientation is derived from G and only enacts when orientation is assigned to G. In an intrinsic frame of reference, an event F that happens before the event G will be in front of G, i.e., the asymmetry of events is used to determine their orientation: FRONT is assigned to that part of the time that is at the beginning of event G. The observer, if there is, has to serve as G, and therefore, the position of a potential observer that is different from G is not relevant. Below we exemplify this frame of reference by using data from Vietnamese.

(4)   a. *Mười năm   trước tôi   đã   đến   nơi   này.*

  "ten   years   front I SUBJ PERF   come   place   DEM"

'I came here ten years ago.'

b. *Tôi   sẽ   đến   thăm anh   sau.*

"I SUBJ   FUT   come   visit you OBJ after."

'I will visit you later.'

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⁴Source: https://app.sketchengine.eu (Accessed 20 July 2020).

The Ground in the examples above is the moment of utterance, i.e., Ego's 'now' serves as G. In referencing to G, F in (4a) is a point of time in the past (ten years ago); in (4b), it is a point of time that is indefinite in the future. In these metaphorically temporal uses, *trước* "front" means 'past', and *sau* "behind" means 'future'. This fact shows that the above expressions are motivated by the intrinsic frame of reference.

To express a point of time that is indefinite, Vietnamese has a construction that consists of *đây*[5] 'now' expressing G as an object of the preposition *trước* 'front'. The preposition phrase *trước đây* refers to the temporal interval from the time of speech to the past. By contrast, the construction *sau này*[6] expresses the interval from the time of speech to the future. As a result, both *trước đây* and *sau này* make the expressions using them become the cases of the intrinsic frame of reference.

Besides, *trước* and *sau* are deictically recruited in noun phrases that mean the point of time in the past or the future, as in (5):

(5)   a. *tuần trước*

         "week   front"

         'last week'

         b. *tuần sau*

         "week behind"

         'next week'

The temporal uses of *trước/sau* in (5) are also applied for other temporal units such as day, month, quarter, and year. What we can imply from these examples is that Ego is explicitly coded as G; the temporal relations here, therefore, are binary with FRONT being assigned to the past. In other words, they are cases of the intrinsic frame of reference.

In Vietnamese, later times can be talked about as being behind the earlier times, and vice versa. Let us see the example below:

(6)   *Sau   khi   đánh   răng,   tôi   đi   ngủ.*

         "behind when   brush   tooth 1.SUBJ go   sleep"

         'After brushing my teeth, I went to sleep.'

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[5] *Đây* originally is a spatial word that means 'here'. When being transferred to the domain of time, it means 'now', therefore, makes *trước* deictic.

[6] *Này* is also a spatial word in Vietnamese. It inherently refers to the position of the speaker, i.e., 'here'. When being transferred to the domain of time, it combines with *sau* to express the interval from the time of speech to the future.

In (6), the event *đánh răng* 'brushing my teeth' is G. It happens before the event *tôi đi ngủ* 'I went to sleep' which is the Figure. This relative order assigns the orientation for the sequence of these events, in which the Figure is behind the Ground, and the past/future relation is reflected on the FRONT/BEHIND axis. The temporal relation is only between two events, therefore, independent of the position of the observer. The frame of reference applied in this sentence is thus the intrinsic frame of reference.

The analysis above allows us to conclude that in the Vietnamese language, for the case of the intrinsic frame of reference, the temporal relations can be determined with or without an Ego as G. In both cases, FRONT is mapped on the past.

2.3. Expressing ternary temporal relations with *trước* and *sau*: a proposal for a model of relative frame of reference in Vietnamese

Bender and colleagues [1, 2] define a relative frame of reference a frame, in which its observer's viewpoint is different from G, i.e., this is a ternary temporal relation. This viewpoint in a temporal frame is the subjective present of the observer. It is used to determine FRONT and BEHIND of a temporal sequence instead of the beginnings or endings of events or the direction of time itself as in the intrinsic or absolute frame of reference. There are two subtypes of the relative frame of reference: reflection and translation. In the reflection subtype, FRONT is assigned to the time between G and V because it reflects the primary coordinate system originating in V onto G. In the translation subtype, the observer's perspective is shifted into G, thus leading to F behind G if it is between G and V and F front G if it is beyond G.

For this frame of reference, we recognize that none of its subtypes is completely applied in Vietnamese. In fact, the assignments of FRONT and BEHIND in ternary temporal relations on Vietnamese data do not belong to any of the cases proposed by Bender and colleagues. We analyze this below.

(7)   [*Ngày mai   chúng ta sẽ   về   khách sạn lúc   9 h.*]

      "tomorrow   we   FUT turn back hotel   when 9:00 a.m."

      'We are turning back the hotel at 9:00 a.m. tomorrow.'

      Trước đó   mọi   người   sẽ   tham quan   khu   phố cổ.

      "front DEM every people FUT visit   area city ancient"

      'Before that, we are visiting the ancient city.'

      Sau   khi   về   khách sạn, chúng ta ăn   trưa tại   nhà hàng   khách sạn luôn.

      "behind when go back hotel   we   eat lunch at restaurant hotel   PART

'After turning back the hotel, we are having lunch at the hotel's restaurant.'

In the example, G is a point of time in the future (9:00 a.m. tomorrow), and the time of speaking is the observer's subjective present. The word *đó* in the second sentence is a demonstrative pronoun that refers to the time going back to the hotel, i.e., the Ground. The phrase *trước đó* points to the temporal interval from G to the observer's viewpoint V. This means that the Figure1 (the event visiting the ancient city) is positioned behind the observer's viewpoint and in front of G. FRONT in this case, therefore, is assigned to the time between V and G. The temporal relation, thus, is motivated by the reflection variant of the relative frame of reference. Meanwhile, the Figure2 (the event having lunch) is localized behind G. The phrase *sau khi* in the third sentence points to the temporal interval beyond G. This means that BEHIND is assigned to the time beyond G. Thus, we see that with G positioned in the future, the ternary temporal relation in Vietnamese belongs to the reflection subtype of the relative frame of reference.

However, when G is localized in the past, the constellation of V, G, and F differs from what Bender and colleagues [1, 2] describe as the reflection variant. In Bender et al. [2], the reflection frame of reference is described as follows:

When applying the reflection subtype (Figure 2c), the observer's perspective is reflected in the reference point G: events F that fall between the observer's viewpoint V and G are in front of G (irrespective of whether G occurs in the past or future of V's present), while events F beyond G are at G's back or behind. [2, p. 291]

Contrary to the claim above, in Vietnamese, when G occurs in the past, the reflection subtype is not afforded because the event F that is in front of G does not fall between G and V, and the event F that is behind G is not beyond G. Instead, F is in front of G if it is beyond G, and behind G if it is between G and V. FRONT thus corresponds to the past, and BEHIND corresponds to the temporal interval restricted between the event G and the subjective present of the observer. The corollary of this is that when G occurs in the past, the frame of reference applied is not the reflection but the translation variant. Let us see (8) below:

(8)   a. *Năm 2010 tôi chuyển về   Huế. Trước đó   tôi sống ở Sài Gòn.*

"year   2010 I move   to   Hue front DEM I live in Sai Gon"

"I moved to Hue in 2010. Before that, I lived in Sai Gon.'

b. *Năm 2010 tôi vẫn làm việc ở Sài Gòn. Sau   đó   tôi chuyển về Huế.*

"year   2010 I   still do work in Sai Gon behind DEM I   move to Hue"

'I still worked in Sai Gon in 2010. After that, I moved to Hue.'

In the two examples, the demonstrative pronoun *đó* refers to the times used as G. In (8a), G is the year 2010, and the subjective viewpoint is the observer's present. Similar to (7), *trước đó* in (8a) refers to the time before G. The difference between them is that in the case (8a), G occurs in the past of V, so the interval represented by *trước đó* is not restricted between G and V; instead, it is from G to the past. FRONT, therefore, is assigned to the G's past. By contrast, *sau đó* in (8b) refers to the temporal interval restricted between G and V, BEHIND in this example thus is constrained to that part of Ego's past which is also in G's future. Therefore, we can see that the frame of reference applied in this case differs from the reflection subtype described by Bender and colleagues [1, 2]. In fact, when G occurs in the past, temporal expressions are motivated by the translation subtype. Combining (7) and (8), we imply that, in Vietnamese, FRONT and BEHIND in the relative frame of reference are determined like in the intrinsic frame of reference despite whether the G's position is in the past or the future. Therefore, the only point to distinguish between these two frames of reference is that G coincides with the Ego in the intrinsic frame of reference, but in the relative frame of reference, G differs from the Ego.

Figure 1 demonstrates the differences between the intrinsic and relative frames of reference in Vietnamese, as described above:

(a) Relative t-FoR
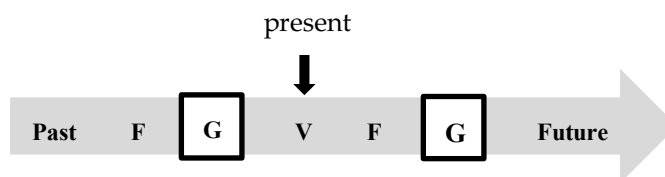
(b) Intrinsic t-FoR
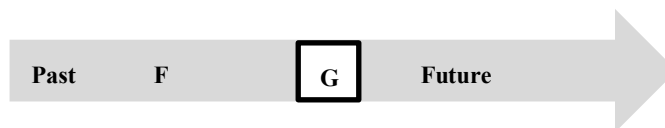
Figure 1. The relative and intrinsic temporal frame of reference in Vietnamese. The grey arrow represents the time line. F represents the Figure to be located. G is the ground event and V the observer's viewpoint.

To summarize, we have argued that the relative frame of reference proposed by Bender and colleagues [1, 2] cannot be applied for the case of Vietnamese. For this frame of reference on the Vietnamese data, if G occurs in the future, FRONT is assigned to the past of G which is the V's future, and BEHIND is assigned to G's future; if G occurs in the past, FRONT is assigned to the G's past whereas BEHIND is assigned to G's future which is also Ego's past.

3.   Conclusion

This paper has analyzed temporal uses of *trước* "front" and *sau* "behind" concerning three temporal frames of reference: an absolute, an intrinsic, and two variants of a relative frame of reference. These words inherently have spatial meanings with an Ego-centered reference point and are respectively FRONT and BEHIND terms in Vietnamese.

Trước and *sau* in Vietnamese are metaphorically used to express the future and the past in the absolute frame of reference. This frame of reference applies to both dynamic and static temporal events. The orientation of the absolute frame of reference in Vietnamese is provided by the arrow of time.

For the intrinsic frame of reference, *trước* means 'past' and *sau* means 'future'. This frame of reference applies to binary temporal relations that encompass deictic events and earlier/later relations. FRONT is mapped onto the past in both cases. When G coincides with the observer's subjective present, the phrases with *trước* represent the temporal interval from the time of speech to the past; the phrases with *sau* represent the temporal interval from the time of speech to the future. When G differs from Ego, the earlier/later temporal relation is only between two events and independent of the observer's position; the past/future relation is reflected on the FRONT/BEHIND axis.

Ternary temporal relations in Vietnamese are motivated by the relative frame of reference; however, two variants of the relative frame of reference proposed by Bender and colleagues cannot be applied to describe the data we have. In this language, FRONT is assigned to the past of G which is the V's future, and BEHIND to G's future if G occurs in the future. In contrast, FRONT is assigned to G's past and BEHIND to G's future which is also Ego's past if G occurs in the past. The difference between the intrinsic and the relative frame of reference in Vietnamese is that for the first one, G coincides with the Ego, and for the second one, G differs from the Ego.

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