

Theory of Mind, the Three Voices, and Temporality in Language

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Introduction

Temporality is an important issue in human language: it is probable that we are the only animal that uses a concept of dislocated existence in our communication. This paper will provide a short overview of the nature of temporality in human experience, concentrating on its use as a propositional device. Although it cannot hope to be a comprehensive study, it should illustrate the vital role that theory of mind plays in our expression of temporality in language.

The Semiotics of the Three Voices

One of the few stable features across languages is the recognition of three types of being in the universe:

- the self;
- the directly addressable non-self;
- and the non-self that is not directly addressable.

Bloomfield refers to these as “speaker, hearer and third person”¹, and we traditionally refer to them as the three persons, or the three voices. We use pronouns, a special class of words, to represent them. Different languages use different ranges of pronouns, but they all come down to the three voices that we use to express the actors in a linguistic proposition. Usually, they are expressed as a table with the vectors of voice and plurality:

	Singular	Plural
1 st Person:	I	We
2 nd Person:	You	You
3 rd Person:	He/She/It	They

Figure 1 - The three voices in singular and plural

The pronouns in a language can be revealing about the interpersonal relationships culturally expressed in the language, both in terms of what is differentiated within a voice and what is not differentiated.

The Spanish *tu* and *usted* forms are an example of such differentiation, permitting different levels of familiarity and deference in addressing the receiver. Variable receiver addressing is common in languages. In Northwestern Europe alone, it is reflected in the French *tu* and *vous*, the German *du* and *Sie*, and archaically in the English *you* and *thou*.

The pronoun *we* is an example of non-differentiation. *We* has no fewer than seven different meanings, as the figure 2 illustrates. In English – and most languages – there is no linguistic differentiation between the seven meanings of *we*: context is the only indicator of the actual meaning. The language construct itself is mostly useless for predicting the meaning, because the “non-me party” referred to in the construct can remain unchanged while the receiver changes. I can say *we are going to the cinema tomorrow* to the person I am accompanying to the cinema, and mean a type 1 *we*. Said to someone else it becomes a type 2 *we* – but there is nothing, semantically, grammatically, semiologically or lexically, to indicate which it is.

¹Leonard Bloomfield, *Language*, p224

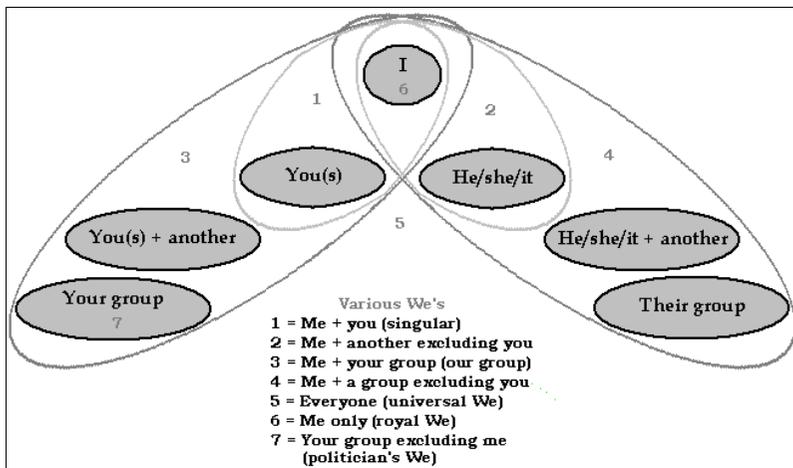


Figure 2 - The seven types of We

However, the gestural signs of BSL are much more revealing about who my group contains. A *we* indicated by a hand movement between signer and receiver is clearly different to one indicated by a hand movement between the signer and the space allocated referentially to a third person.

Because the three voices are so ubiquitous, we should expect them to express something fundamental in all languages, possibly something fundamental to language as a communicative device; and this is precisely what we find.² In all communication, we see a natural relationship between the four components of communication. These are: the message itself; the message sender, who is always the first person, me; the message receiver, who is always the second person, you; and the referent of the message, which is always a third party. In language terms this can be expressed as *I inform you about it*, and the relationship can be illustrated in the following diagram:

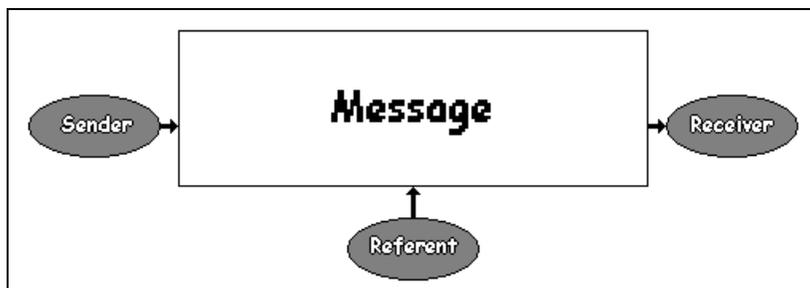


Figure 3 - Communication process (standard semiotics) model

²Émile Benveniste, The Nature of Pronouns. In *The Communication Theory Reader*, ch19

The four components of communication, message, sender, receiver and referent, all have to be present – no communication can exist with only three of them. If there is no message, there is no communicative expression; if there is no sender, there is no way for communication to be produced; if there is no receiver there is no purpose in communicating, and if there is no referent then there is nothing for the communication to be about. The sender gives the message **embodiment**, the receiver gives it **purpose**, and the referent gives it **meaning**.

This four-part relationship also matches with Jakobson's six constitutive factors of a speech event – Addresser, Context, Message, Contact, Code and Addressee³; and Morris's five basic terms of semiosis:

For present purposes the basic terms of semiotic can be introduced as follows: Semiosis (or sign process) is regarded as a five-term relation — v, w, x, y, z — in which v sets up in w the disposition to react in a certain kind of way, x , to a certain kind of object, y (not then acting as a stimulus), under certain conditions, z . The v 's, in the cases where this relation obtains, are *signs*, the w 's are *interpreters*, the x 's are *interpretants*, the y 's are *significations*, and the z 's are the *contexts* in which the signs occur.⁴

Jakobson's and Morris's models fit the basic standard semiotics model, but only with some adjustment. Non-language communication, in this model, does not include Jakobson's *contact* or *code*. Of the remaining items, the addresser, addressee and message map uncontroversially to sender, receiver and message; and context, as shall be shown below, maps to referent. Jakobson himself makes the association between context and referent: "to be operative the message requires a CONTEXT referred to (the "referent" in another, somewhat ambiguous, nomenclature)" (ibid).

Morris's model is more difficult to reconcile. For a start, Morris does not include the addresser/sender in his model, so the implied existence of this component has to be made explicit in the reconciliation. v , the sign, maps reasonably well to the message, while w , the interpreter, clearly maps to the receiver. x , the interpretant, maps to the action in the message (which, as we will see, in non-language also maps to the referent); y , the signification, maps directly to the referent; and z , the context, also maps to the referent.

This reconciliation process is more than just an attempt to reduce all models to an ad hoc base, it identifies the features of language semiosis which are subsumed or missing in non-language communication. In Jakobson's model, *contact* is missing because there is no need for phatic communication in non-language: the message does not rely on the relationship between sender and receiver, it is either intrinsically trustworthy – because it is costly or non-voluntary – or it is untrustworthy, and therefore not a message. *Code* is missing because, as we will see, the signal is its own code. A signal has only one meaning, so no coding or decoding is needed. The merging of *signification*, *interpretant* and *context* in Morris's model says something important about the nature of the referent in non-language communication, and points to important differences between language and non-language.

Let us start with context, a term common to both Jakobson and Morris. Non-language signals are completely context bound: the signal can only be made in one context, and that context can generate only one signal. For instance, the vervet leopard call is only made in the presence of a

³Roman Jakobson, *Language in Literature*, Chapter 7, p66

⁴Charles Morris, Signs and the Act. In *Semiotics: an introductory anthology*, p178

leopard or similar animal. While deception remains a possibility⁵, it can only occur rarely, otherwise the signal ceases to be contextually associated with its referent, and it becomes meaningless.

Because the signal has a one-to-one relationship with the referent through the context, no coding or decoding is needed. The signal is its own code: the receiver knows, on perceiving the signal, what the context and referent are, because the signal has only that referent to which it can refer, and only that context in which it can occur. The vervet leopard alarm call does not just *mean* 'leopard here-and-now', it *is* 'leopard here-and-now', and stands in place of that animal as effectively as the animal itself.

This leads on to the signal/message dichotomy. In non-language, the signal has a single referent, so a single meaning, and a single context; and, if meaning and context co-identify, then the signal can only have one message. In language, the signal and the message can be different. The message *That'll work* said in a context of cooperation has exactly the opposite meaning to *That'll work* said in a context of opposition; and, as we have seen, *we are going to the cinema tomorrow* is completely reliant on context for its meaning. In nonlanguage, one signal contains one message in one code with one meaning about one referent in one context to evoke one response, or action, in the receiver. In language, signal, message, code, meaning, referent, context and receiver action can all be dislocated from each other.

In all communication, as has been said above, three of the components of communication are fixed, and therefore do not need to be explicitly stated: the message is always the vehicle, so its existence is self-defining; the sender is always *me* – it does not need to be stated; and the receiver is always *you* – it, too, does not need to be stated. This leaves the referent as the only part of the communication process that needs to be made explicit: the signal containing the message has to be explicitly about the referent. Additionally, in non-language communication but not in language, the action implied by the signal is implicit to both the referent and the signal itself – one sign represents both the referent and the action the sender wants the receiver to perform.

However, even though all these things are co-identified in non-language, they are still intrinsically present as separable components. The sender outside the message is also the instigator of the action request/demand implied inside the message; and the receiver of the message is also the recipient of the implied action request/demand. This can be summarised in the diagram below:

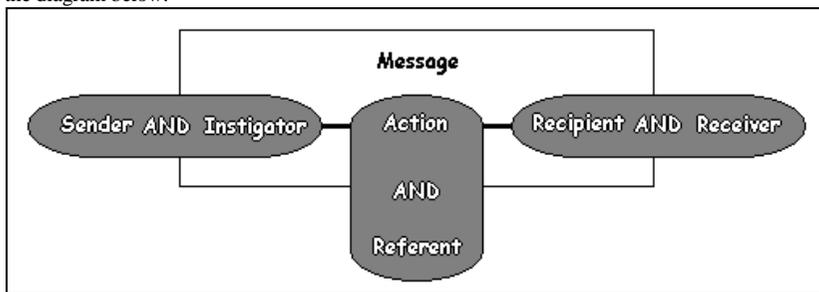


Figure 4 - The communication process model with language components co-identified

⁵ Dorothy L Cheney & Robert M Seyfarth, *How Monkeys see the World: inside the mind of another species*, ch7

In language, things are different. As well as signal, message, code, meaning, referent, context and receiver action all being separable, the instigator of the action inside the message is dislocated from the sender of the message, the recipient and receiver are dislocated, and the action is dislocated from the referent⁶. This means that, in language, we are able to subdivide the message into at least three parts to create a simple proposition:

something / does / something.

We traditionally call this the subject-verb-object structure of a sentence; but it reflects a deeper structure, which can also be identified in an embryonic form in non-language communication, too. Structurally, the components of a linguistic proposition – Subject-Verb-Object, or Instigator-Action-Recipient – map directly to the components of communication (Sender-Referent-Receiver). However, semantically they have become dislocated: the action invoked by the referent is no longer co-identified with the referent; the recipient is no longer always the receiver, *you*; and, most importantly, the instigator does not need to be the sender, *me*.

When a vervet monkey makes a leopard call, what happens, according to this model, is:

[I] [leopard / climb-tree] [you].

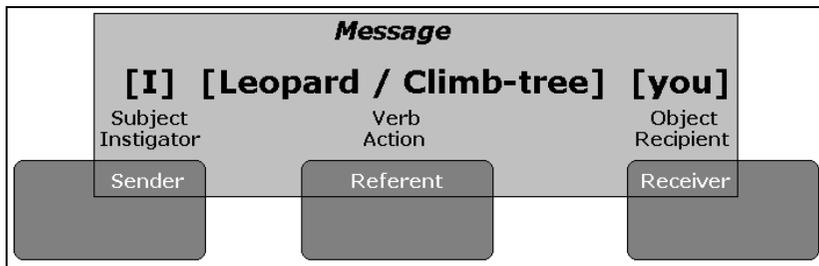


Figure 5 - mapping of signal and message components in communication

It is reflected in the single English word *Leopard*, when used as a warning. The vervet signal can only be expressed in the here-and-now, between the present *me* and the present *you*, and the implied action of *tree-climbing* is inseparable from the referent of the signal, *leopard*. On the other hand, in language we can say *John warned Mary about the leopard*, separating: the sender, *I* from the instigator, *John*; the receiver, *you*, from the recipient, *Mary*; and the referent, *leopard*, from the action, *warning* (ibid p14).

The Self and Theory of Mind

The separation of the Sender from the Instigator is tied to the ability to produce a model of our self within our own mind. Full human language needs a theory of mind for the self to be able to model situations where the self is not the only possible instigator in an activity; and this only becomes possible when the self is able to model itself. While, from a human perspective, this would appear to be an incredibly advantageous thing to do, from a selfish gene perspective it appears highly disadvantageous.

⁶ Martin Edwardes, *The Role of Communication Structure in the Progressive Evolution of Grammar*, pp11-18

The imperatives of evolution dictate that it is always advantageous to be able to predict the actions of others – you can then take steps to counter those actions before they have occurred. Predicting others' actions allows the individual to avoid unwinnable confrontations and predation, while facilitating more felicitous encounters, such as mating.

However, the cost of predicting your own actions is that you have to take a dispassionate view of yourself – and how could being dispassionate about yourself be of advantage, when all around are intrinsically passionate about their own survival and reproduction?

If we see the development of theory of mind as the ability to answer more and more complex questions about motivations, the following four stages and questions become progressively significant:

- **Sense of others:** *What will they do?* Events outside the self dictate the responses of the self.
- **Sense of self:** *What can I do?* The self has optional responses.
- **Other awareness:** *What would they do if they were me?* The self is a model for predicting the behaviour of others. However, there is no intentionality, only comprehension that the range of options available to others is the same range available to the self. There is no need for recognition of the interpersonal structure of “me” and “you”.
- **Self awareness:** *What could I do if I were them?* Others are the model for predicting both their own behaviour and my response: their range of options may well be different to mine, so I cannot model their behaviour solely on mine. Others have choices, so they must have intentionality, and I must have it, too; and if there is intentionality then there must be a “me” and a “you” to have it.

Something happened in human evolution that allowed us to pose and answer the fourth question *what could I do if I were them?* However, it is impossible to even pose that question in a strictly evolutionary environment. To do so, the self has to be able to model itself, and be able to place that model into a range of unreal situations. The answer to the question allows *me* to understand *your* motivations and accommodate them – but why should I be interested in doing that? The self that accommodates others is not just compromising its own survival, it is promoting the survival of others over itself. It is not a strategy that would get the accommodating genes into the next generation.

It is possible to argue that a species which co-operated would have notable advantages over one that did not; but, as Dawkins points out, this is a group-selectionist argument, and not sufficient to prove the existence of co-operation in a selfish gene environment. Only while co-operation does not compromise personal survival can it exist; if there is a superior, non-co-operative strategy then co-operation will soon be bred out of the species⁷. In humans, we have to look for a strategy where co-operation is such a successful selfish strategy that pure selfishness becomes the weaker strategy. Only then can we posit an environment where co-operation becomes communicative as well as performative. Currently, only Chris Knight's female solidarity theory seems to fit all the requirements and all the known facts⁸.

When we analyse the question *what could I do if I were them* linguistically, we can see that it has two instantiations of *I* – two versions of the self. The first *I* is a self in a knowing environment: this self cannot be defined to the self because it *is* the self. The other *I* is a self in a doing environment: this is not a real self but a model created by the self-who-knows which

⁷ Richard Dawkins, *The Selfish Gene*, pp7-10

⁸ Chris Knight, *Blood Relations: menstruation and the origins of culture*

takes on the attributes of a non-self. Because it is a model it allows the self-who-knows to play with the self-who-does, positing it into a range of circumstances without actually risking those circumstances. The question *what could I do if I were them* can therefore be rephrased as: *what could the self-who-knows do if the self-who-does were someone-else-who-does?*

However, this separation of self-who-does from self-who-knows means that the self-who-does can be moved not just through the realm of what-if, it can be moved through space and time, too. While the self-who-knows is limited to the here-and-now, the self-who-does can be modelled into any circumstance the self-who-knows can imagine. Thus the separation of the selves, created by the separation of sender and instigator, also creates the possibility of temporal modelling.

Language and Temporality

This brings us to the expression of time in language; or, to give it an individual label, temporality. I have elsewhere argued that human language is based on the identification of the self as other, a level of self-awareness that is likely to be absent from other animals.⁹ If the idea has merit, then it should be possible to find evidence of the separation of selves within language itself, and temporality provides an excellent example.

To humans, time is three different things: it is an **object** which can have instantiation, such as *today* or *before breakfast*; it is a **process of change**, such as *during* or *then*; and it is a **function** that lies behind the instantiations and process, such as *regularly* or *always*. Thus, when we try to see time as a feature of language we are almost back to Plato's definition: time is change caused by life¹⁰. Our experience of time is dictated by human attributes: we live unidirectionally in time, remembering our past but having no direct understanding of our future. These attributes cause us to see time as serial change, and it can even be argued that they affect our view of concepts like free will and entropy. In our Universe there is a physical process whereby things change relationship to each other, and these relationships can be expressed in terms of space and context. Time is really just the expression of the relationship of the *before* and the *after* to the *now*.¹¹

In language, the structures of tense and temporality should not be confused. Temporality is that part of a message concerned with when the action will take or has taken or may take place, whether it is complete, and whether it represents a single action or a series of actions. Tense, on the other hand, "...is grammaticalised expression of location in time"¹². Tense is the linguistic mechanism whereby an action can be allocated to a position in time relative to the present. Temporality also encompasses aspect, which is concerned with effects like perfective/imperfective temporality – the difference between *I watched the game* and *I was watching the game*. Comrie distinguishes aspect from tense in the following way:

However, although both aspect and tense are concerned with time, they are concerned with time in very different ways. As noted above, tense is a deictic category, i.e. locates situations in time, usually with reference to the present moment, though also with reference to other situations. Aspect is not concerned with relating the time of the situation to any other time-point, but rather with the internal temporal constituency of the one situation; one could state the difference

⁹ Martin Edwardes, *The Role of Communication Structure in the Progressive Evolution of Grammar*

¹⁰ Plato, The Laws, Book X, from *The Essential Plato*, trans. Benjamin Jowett

¹¹ Martin Heidegger, *Being and Time*, pp.329-331

¹² Bernard Comrie, *Tense*, p9

as one between situation-internal time (aspect) and situation-external time (tense).¹³

Temporality also includes mood and conditionality, the ability to place an event not just in time but in a universe of possibility. Mood is the ability to express uncertainty by the use of inflection: a tense or group of tenses (for example, the subjunctive) expresses the binary difference between the evidentially real and the proposed unreal (often called the *realis/irrealis* contrast). Conditionality is the ability to express uncertainty by using verbal adjuncts. These tend to be more flexible and capable of expressing a larger set of uncertainties than inflections, so they do not form a single binary relationship with *realis*.

While there is a large, but finite, range of terms for expressing conditionality (*would, could, may, might, should*, and so on) we nonetheless tend to see conditionality as a continuum rather than a set of discrete points. This is illustrated by a recent grammaticalization, whereby *may* and *might* have ceased to be inflections of the same verb and have become verbs in their own right: *might* now expresses a less certain event than *may*. As well as the auxiliary verbs, there are a series of adverbials (*certainly, probably, maybe, possibly, not, never*, and so on), which can be used in conjunction with the auxiliaries; and there are also several idioms (e.g. *in the unlikely event that*). English provides a good example of an extensive conditional linguistic system: verbal auxiliaries are supplemented by a range of adverbials to form a rich probability space.¹⁴ By combining these together a quite complex expression of conditionality metamessaging can be generated: *it is possible that I could maybe get there by eight o'clock*. The iterative conditional nature of this construct offers uncertainty in its very iteration, but it also gives the pragmatic metamessages *don't expect me at eight o'clock* and *it's not my fault if I don't get there by eight o'clock*.

The traditional view of time in language is that we can express events on two vectors. The first extends from the past into the future, and the second extends from positive certainty, through a range of probabilities, to negative certainty. The two vectors interact, such that certainty is greatest in the present, and attenuates the further into the past or future an event is placed. The distance from the present has a direct relationship with the level of modality, or conditionality, as the following diagram shows:

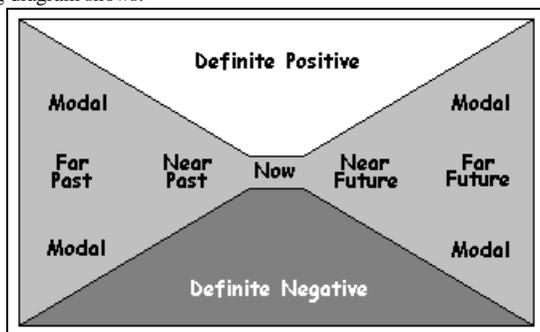


Figure 6 - The realm of language: past, present and future with conditionality

¹³ Bernard Comrie, *Aspect*, p5

¹⁴ Frank R Palmer, *Mood and Conditionality*

The physical self, the self-who-knows, remains fixed in the present, but it can view events as having occurred in the past, or as due to occur in the future. It does this by modelling the self-who-does into the appropriate timeslot. This is a powerful capacity, but it is a mere fragment of what we do in language.

As humans we are able to divide ourselves into multiple instances. The ability to make the first model of the self carries with it the possibility of making further models. Not only can the self-who-knows produce models of the self as the self-who-does, it can produce models of the self which are viewed by the self-who-knows and which in turn view the self-who-does. Like a Russian doll, the self-who-does becomes a model within a model: the self-who-views, itself a model, has an internal model of the self-who-does.

There are now three selves, with a watcher watching the watcher watching the watched. In theory, more instantiations of the self-who-views can be inserted between the self-who-knows and the self-who-does; but, in practice, this seldom happens. For instance, if we look at the following construct we can identify a tetrapartite division of self:

- *Tomorrow at this time I will be about to have finished leaving the country* – the self-who-does is *leaving the country*; a self-who-views sees this as an event in its past (*have finished*); another self-who-views sees the first self-who-views as a future self (*be about to*); and the self-who-knows also sees the second self-who-views as a future self (*will*). *Tomorrow at this time* adds definition to the construct but does not affect the temporality.

However, this is more an intellectual exercise than a regularly used form, and extracting meaning from it is difficult. This paper will, therefore, concentrate on the relationships between the three selves, the self-who-knows, the self-who-views and the self-who-does, in tripartite relationships.

The Three Selves and Temporality in Language

How do the three selves work together in expressing temporality in language? The easiest way to show this is to look at some tenses in English. Some linguists argue that English has only two true tenses, present and past – *do/does* and *did*.¹⁵ These are the only inflections of verb forms, and therefore the only way that temporality is directly expressible in the verb. This is a restrictive definition of tense, left over from a tradition of comparing English with classical languages like Latin; it will not be the definition of tense used here. At the other extreme, any expression of temporality on a verb can be viewed as a tense marker. This has the advantage that all temporality is included, but it has the problem that tense cannot be defined by a simple (or not so simple) set of grammar rules: it is a functional explanation rather than a formal definition. While it does get us closer to an understanding of how and why we use temporality in language, it will not be the definition of tense used in this paper.

The traditional view is that, in English, constructs that include auxiliary verbs, such as *will* and *have*, count as tenses. This certainly provides the full range of temporal relationships that need to be expressed, in terms of both tense and aspect, but it fails to identify certain non-verb temporal relationships. For instance, *we are going to the cinema* expresses a significantly different temporality to *we are going to the cinema tomorrow*. Nonetheless, this compromise, which corresponds to Comrie's definition, is what will be meant by tense in this paper.

¹⁵ Martin H Manser (ed), *Bloomsbury Good Word Guide*, p288

If we look only at the conceptually simple tenses in English, we have the uncontroversial past perfect and future simple tenses: *I have done* and *I will do*. In both of these cases, the self-who-knows and the self-who-views remain in the present. In fact, there is no separation between the present selves: there is no need to posit a self-who-views as separate to the self-who-knows, and a simple two-self model suffices. The third self, the self-who-does, has, of course, been modelled into the past or future. The temporal location of the self-who-does we will call the **action point**, the point at which the action of doing takes place.

We can also move the self-who-views into the past or future, and the self-who-does then has a past or future position relative to the self-who-views. The location of the self-who-views we will refer to as the **viewpoint**. The self-who-knows cannot be moved from the present, because knowing is the here-and-now part of the construct.

The relationship between the selves is linear: the self-who-knows has a relationship with the self-who-views, and the self-who-views has a relationship with the self-who-does. This means that the self-who-knows has no direct relationship with the self-who-does, unless the self-who-views has been telescoped into the self-who-knows. The potential of the self-who-views is not lost in the two-self process, it is just that the self-who-knows is able to subsume the self-who-views, because both selves are in the present. This also has implications for the one-self process that must have preceded the multiple-self processes: the potential of the self-who-does is telescoped into the self-who-knows, it is not lost.

Thus, with the three selves, we have a range of possible temporal relationships. The viewpoint can be in the past, future or present in relation to the here-and-now point of the self-who-knows, and the action point can be earlier or later than the viewpoint. In addition, the action point can be in the present, but then the viewpoint must also be in the present. The range of relationships, therefore, has only seven tenses:

Viewpoint	Action Point	Form
Past	Earlier than viewpoint	I had done
Past	Later than viewpoint	I was going to do
Present	Past	I did
Present	Present	I am doing
Present	Future	I will do
Future	Earlier than viewpoint	I will have done
Future	Later than viewpoint	I will be going to do

Figure 7 - The seven tenses

Intrinsic to these cases is the view that time is a linear process, moving from past to future, and this is behind the two metaphors of time that Lakoff & Johnson identify: the self moving through a stream of time, and the tableau of time passing in front of the self.¹⁶ Although there is an essential asymmetry in time – we know the past and cannot know the future – we nonetheless model it as a symmetrical structure – we can place events in the future in the same way as in the past. This symmetry is reflected in the seven tenses given above, and the symmetry of the seven tenses can be expressed in the diagram below:

¹⁶ George Lakoff & Mark Johnson, *Metaphors We Live By*, ch9

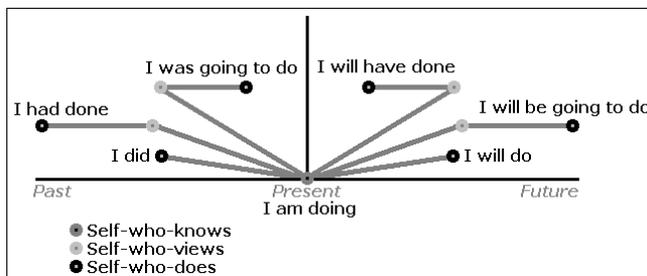


Figure 8 - The seven tenses expressed on a timeline

However, this collection of tenses leaves out several important components of the linguistic expression of temporality. As has been said, the issue of aspect is also important. We don't just place an event on a timeline in relation to the present and a selected viewpoint, there are a range of other temporal effects that we use to express the nature of the event. These are:

- continuity or imperfection
- imminence
- conditionality
- connectivity

These components are not outside the model, they are part of it, and they will be described swiftly to show how they fit in.

Continuity

An event can occur in one of three ways:

- it can be a single event, completed at the action point, as in *I shot the sheriff*
- it can be a single event not completed at the action point, as in *I'm writing a letter to papa*
- it can be a series of events, some of which are complete at the action point, and some of which are not, as in *I go to school every day*.

Continuity expresses temporality at the action point, and it therefore relies on the action itself for part of its implicature. All verbs contain continuity semantically, and the type of continuity is not uniform. For instance, the action of *shooting* in the first example above is a split-second event, and does not easily lend itself to incompleteness: *I am shooting the sheriff* usually implies a future event rather than a current, incomplete event. Similarly, *I like my sister every day* sounds odd because *like* is a single event which can never be completed at the action point.

Imminence

An action point can occur close to a viewpoint or further away; and a viewpoint can be close to the present or further away. Of course, if either point is actually in the present then telescoping occurs, and imminence disappears. The seven tenses given above can dictate the temporal ordering of action point and viewpoint, but they cannot determine the distance between them: that is the job of imminence.

A completed action can have variable distance from the present, although in many languages only two distances are recognised. In some East African languages, there are two distinct past tenses to indicate imminent and non-imminent events¹⁷, and this is partially the case in English.

¹⁷ David Lee, *Competing Discourses: perspective and ideology in language*, p9

Imminence can be illustrated with the following two sentences: *I walked the dog* and *I have walked the dog*. The viewpoint of the action is the same for both sentences (the present) and the action point is the also the same (the past); but the action point of the second sentence has greater proximity to the present than the action point of the first. Imminence can occur in the future, too. In the sentences *I will walk the dog* and *I am going to walk the dog*, the viewpoint is the same for both (the present) and the action point is also the same (the future); but, once again, the action point of the second sentence has greater imminence. *I am about to walk the dog* has even greater imminence, which shows that, in English, imminence can be viewed as scalar and not just a binary dichotomy.

In English, as well as auxiliary verb tense forms, imminence is usually expressed with relative adverbials, like *soon* and *just*. It can also be indicated by absolute adverbials, like *tomorrow* and *last week*, or with adpositional phrases, like *by tomorrow* or *before next week*. In English, the relative adverbials tend to affect the distance between viewpoint and action point, while the absolute terms tend to affect the distance between viewpoint and the present. Thus, in *we will have almost done it tomorrow*, *almost* indicates that the viewpoint of tomorrow is close to the action point of doing, while the adverbial *tomorrow* fixes the distance between now and the viewpoint as one day. *Almost* also serves another temporal function, converting the action from completed at the action point to incomplete. It also, therefore, has an effect on the continuity of the construct, showing that temporal effects are not always linguistically isolable.

Conditionality

Conditionality is concerned with what can be expressed in language to place events onto the second vector of probability, within the first vector of time. Pinker sees the human understanding of temporality as a metaphor of our spatial understanding¹⁸, but this would seem to be somewhat of a simplification: there is something novel about time that is not present in spatial modelling, and that is conditionality. With conditionality we get planning, what Donald calls “the rehearsal and review of action”.¹⁹ It is difficult to see how an analogy of space could permit such a novel possibility: a model of space is useful for finding out what is, the *realis* of the world, and there would seem to be little purpose in finding out what isn’t; a model of time is useful for planning what isn’t, the *irrealis* of the world, in order to bring it about.

Conditionality occurs between now and the action point, but only if the viewpoint is in the present. For instance, *I may have eaten* and *I might eat* are permissible English forms. However, *I may had eaten* is just wrong, while *perhaps I was going to eat*, *perhaps I will have eaten* and *perhaps I will be going to eat* add uncertainty but not, strictly, conditionality. Events in the future of the viewpoint already have the uncertainty that the future is unknown, and adding an adverbial – *perhaps*, *maybe*, *it is likely that* – only increases the uncertainty, it does not change certainty to conditionality.

Indeed, the replacement of *will* with *may* illustrates the problem particularly well. *I may have eaten* does not express the same temporality as *I will have eaten*: while *will* expresses a viewpoint in the future, *may* causes the viewpoint to elide into the present. It seems as if conditionality moves the viewpoint through irreality and not through time. If this is the case, then conditionality is indeed a second dimension working with the unidimensional timeline, as shown in figure 6.

¹⁸ Steven Pinker, *How the Mind Works*, pp.352-355

¹⁹ Merlin Donald, *A Mind So Rare*, p142

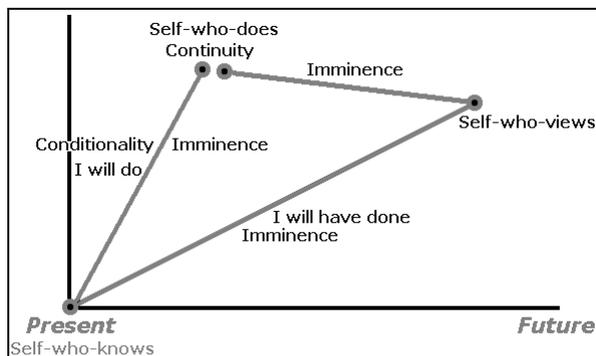


Figure 9 - The realms of continuity, imminence and conditionality

Figure 9 shows where continuity, imminence and conditionality operate in terms of action point, viewpoint and now. Two different tenses are given to illustrate the realms for a two-point and three-point tense. This diagram therefore illustrates all the major effects on temporality in language, except one: connectivity. This is perhaps the most important in terms of narrative: without the ability to link constructs together logically and semantically, dialogue becomes an exchange of unrelated facts, and narrative becomes impossible. As these are differentiating features between human language and nonhuman communication, the importance of continuity cannot be overstressed. Continuity is the temporal relationship that gives purpose to all the other temporal relationships.

Connectivity

Unlike the rest of temporality, connectivity is not an expression of temporality *within* a language construct, it expresses temporality *between* constructs. It is the feature that facilitates the never-ending discourse of language, and lies behind Alexander Pope's "nothing stands alone"²⁰.

Connective temporality comes in three forms:

- Some connectives carry low levels of temporality. For instance, *I went to the cinema and saw a film*: we know that one event happened after the other and, contextually, we can work out that going to the cinema comes before seeing the film; but we also know that this is not a given, only a reasonable assumption.
- Some connectives carry oblique levels of temporality. For instance, *I went to the cinema because I wanted to see a film*: once again, we know the order of events, the cinema must precede the film; but the first event is causative of the second – if the first happens the second need not happen, but if the first does not happen the second cannot happen.
- Some connectives carry high levels of temporality. For instance, *I went to the cinema before I saw the film*: the ordering of the two events is explicit and subject to only one interpretation.

Connectives allow utterances to place events into a structured temporal relationship, which is at the heart of the human ability to tell stories. This is no small side-effect of language, it is at the heart of it. Every time we plan we are telling ourselves a little story, extrapolating existing

²⁰ Alexander Pope, *Essay on Man*, p31

circumstances through a net of possibilities to reach a conclusion. And if the first story does not end in happy ever after, we can try others until we get the result we want.

Conclusion

To sum up, because we are able to see ourselves as more than one person, we are able to overcome the problem of viewing everything from the present. By modelling ourselves as future or past entities we create the twin possibilities of planning and reviewing our actions; but this also raises the possibility of the model of oneself creating a model of itself, so that we can review our plans before they are enacted.

We are a species who possess the strange attribute of language – possibly the only species so endowed; but language is only the external instantiation of a mental modelling process. This process allows us to generate models of the actions of others, attribute our own options to those models, and thus predict and plan for those actions. At some stage and for some reason, humans developed a highly co-operative social structure, which meant that it became profitable to communicate and share our models with other individuals. However, the sharing would have made us aware of the fact that others were attributing intentions to us as individuals, so our modelling of others as ourselves could become a modelling of us as ourselves. As Robbie Burns put it in his poem, *To a Louse*: “O wad some Pow’r the giftie gie us, *to see oursel as others see us!*”

The separation of selves opened up the possibility of modelling those selves into the past and future, and of telling each other about those models. We became able to plan co-operatively, and use the Plan-Execute-Review cycle as a shared experience rather than just an internal, personal one.

I hope I have shown that sense of self and self-awareness are vital to language. They dictate the type of theory of mind we can achieve, which determines our ability to model events; and our event models determine our ability to express time within language. Modelling the motivations of others is a step towards understanding the motivations of others; and that, in turn, is a step towards empathy. If language is a product of a high level of co-operation, then sense of self may even be part of the reason why we have language at all.

For Chomsky, recursion is currently the *sine qua non* of language.²¹ However, if the model proposed here is correct, then recursion is only an emergent property of the process leading to temporality: the Russian dolls of self form a potentially infinite recursion of models, and the levels of intentionality they imply form the basic structure for recursion throughout language.²² If the model is accepted, then exploring sense of self and theory of mind in the origins of language must be more seminal and more productive than exploring recursion, and they should provide a rich source for current linguistic enquiry, too.

²¹ Marc D Hauser, Noam Chomsky & W. Tecumseh Fitch. The Faculty of Language: what is it, who has it, and how did it evolve? In *Science* vol 298 22 Nov 2002, pp1569-1579

²² Robin Dunbar, *The Human Story: a new history of mankind's evolution*, pp47-69

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