Time and Language

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It’s about Time

Time is an Illusion: lunch-time doubly so
Hitchhiker’s Guide

How we talk about time

A digression before we start: how do we describe what goes on?
The Sapir Whorf hypothesis.

(Very loosely).

• The strong form: you cannot discuss a concept unless you have the language to describe it.
The weak form: your views of the universe are modified and restricted by language.

A famous wrong example: Inuit have 56 words for snow (they actually have one!). However skiers have at least 10: (powder, crud, hard-pack, ice, crusty, slush, spring, corn, sugar, fresh, wet, piste, corduroy....).
Most of these distinctions are meaningless to non-skiers, but they allow a concepts to be transferred in compact form.

But this is no more than jargon..

• All specialist interests have an associated vocabulary
• e.g. pop music, finance, law....even physics

So does it work?

• Better: language represents a “window into the mind” (Pinker)

• We think in “mentalese” and translate it into a language

• I picked the car up yesterday, so that, if you go to the supermarket now, I will have time to drive to Montreal.
I picked the car up yesterday, so that, if you go to the supermarket now, I will have time to drive to Montreal.

J'ai pris la voiture hier, de sorte que, si vous aller au supermarché maintenant, j'ai le temps pour conduire à Montréal.

Ich habe das Auto gestern auf, damit, wenn Sie zum Supermarkt jetzt gehen können, ich Zeit habe, nach Montreal zu Fahren.

Ayer recogí el coche, así que, si puedes ir al supermercado ahora, tendré suficiente tiempo para conducir a Montreal.

An (unspoken) model of time: Note 3 s "now" is confirmed by psychology

However we tie down past and future with events.

We'll call this the linear model

Our linear model of time is enhanced in several ways:
Absolute time (rather than relative)

Multiple Frames of reference. Note we agree on common events, past and future

Past is immutable, future is fluid

Not just in philosophy and physics, but poetry as well

The Moving Finger writes; and, having writ,
Moves on: nor all thy Piety nor Wit
Shall lure it back to cancel half a Line,
Nor all thy Tears wash out a Word of it.
Rubaiyat of Omar Khayyam tr. by Edward FitzGerald

Time past and time future
Allow but a little consciousness.
To be conscious is not to be in time
T. S. Eliot Burnt Norton

And the seasons they go round and round
And the painted ponies go up and down
We are captive on the carousel of time
We can't return we can only look behind from where we came
And go round and round and round in the circle game
Joni Mitchell The Circle Game
E.g. We can construct “impossible” sentences

- I might stop for a coffee on the way to Montreal
- I might stop for a coffee on my way to the garage yesterday

The Five Commonest Nouns in English

1. Time
2. Person
3. Year
4. Way
5. Day

Time in English

- We have a vast array of words linked to time: e.g.
  
  **Measurement of time**: hour, minute, second, year, epoch, age, period, watch (two meanings), clock, ....
  
  **Passage of time**: brief, momentary, lengthy, overlong,
  
  **Temporal ordering, or relative time**: before, after, future, past, history, late, early, first, second, causal, prediction, ....
  
  **Absolute time (usually in phrase)**: 9/11, last Tuesday, Death of Caesar ....
**Time in English**

**Change:** rapid, slow, languorous, flow, dragging, .......

**Many more that imply time:** paleolithic, oscillatory, periodic, ancestor, descendant, son, speed, acceleration, breakfast, teatime.

**Note** (very important for later) we already have the idea that things change with time : e.g.

\[
\text{speed} = \frac{\text{distance}}{\text{time}} = \frac{d}{t}
\]

The past, present and future walked into a bar.

The situation was tense

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**Tenses**

but not just words: grammar. In Latin we learned 6 tenses:

<table>
<thead>
<tr>
<th>Tense</th>
<th>Latin Form</th>
<th>English Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present</td>
<td>Amo, Amas, amat</td>
<td>I love, you (s) love, he she or it loves</td>
</tr>
<tr>
<td>Past</td>
<td>amavi</td>
<td>I loved</td>
</tr>
<tr>
<td>Future</td>
<td>amabo</td>
<td>I will love</td>
</tr>
<tr>
<td>Imperfect</td>
<td>amabam</td>
<td>I used to love/I was loving</td>
</tr>
<tr>
<td>Pluperfect</td>
<td>amaveram</td>
<td>I had loved</td>
</tr>
<tr>
<td>Future perfect</td>
<td>amavero</td>
<td>I will have loved</td>
</tr>
</tbody>
</table>

**Note**
- this is grossly simplified: these are Indicative active tenses
- We also have Subjunctive active (amem ⇒ May I love)
- Indicative passive (amor ⇒ I am loved)
- Subjunctive passive (amer ⇒ May I be loved)
- Imperative (ama ⇒ Love! (or else))
- These are “moods”, but we are really only interested in the temporal aspects

**Note many subtleties:** e.g prediction
- We will overcome (Negro Spiritual)
- We shall overcome (Peter Seeger’s adaptation)

Note that although we always use the same English construction for prediction, we don’t mean the same thing: e.g.
- The sun will rise tomorrow
- The Sens will win the Stanley Cup
Also note that not all of these translate into even other Indo-European languages e.g
"I speak" & "I am speaking" ⇒ "je parle"
"I speak" & "I am speaking" ⇒ "Ich spreche"
but "I speak" ⇒ "Sto parlando" & "I am speaking" ⇒ "Parlo"
This does not imply that those languages are incomplete

Also note that other languages have other tenses (again from Wikipedia)
- Near future tense: in the near future, soon
- Hodiernal future tense: sometime today
- Post-hodiernal future tense: sometime after today
- Remote future tense: in the more distant future
- Predictive future tense: a future tense which expresses a prediction rather than an intention, i.e., "I predict he will lose the election, although I want him to win". As such, it is really more of a mood than a tense. (Its tenseness rather than modality lies in the fact that you can predict the future, but not the past.)
- Nonfuture tense: refers to either the present or the past, but does not clearly specify which. Contrasts with future.
- Nonpast tense: refers to either the present or the future, but does not clearly specify which. Contrasts with past.
- Not-yet tense: has not happened in present or past (nonfuture), but often with the implication that it is expected to happen in the future. (As such, is both a tense and a modality). In English, it is expressed with "not yet", hence its name.

Causality: a meta-rule in science
- i.e. all effects have a cause, which precedes it in time.
- Wind is caused by trees waving their branches (Ogden Nash, see also G. K. Chesterton)

Note this is not a matter of science (!): could a religion deal with an acausal universe?

Can we even contemplate a universe where a large number of events occur without cause?

Causality and Language
- Handled by standard constructions
- The cat died so I flushed it down the toilet
- Because the cat was dead, I flushed it down the toilet
- Note implied sequence of events

But note we have constructions that violate causality
- I went to the supermarket yesterday because I have to go to the dentist tomorrow

Will need a more precise way to define causality

More subtle...
- How do we learn the connection between cause and effect?
- e.g cat...
David Hume/ William James

- learning involves cause and effect:
- need to hear “cat” in temporal connection with live (or dead!) or picture of cat

Free-will/Determinism

- in the Sapir-Whorf context, English is biased in favour of free-will: e.g.
  - “I decided to go to the movie tomorrow”
  - “I decided not to go to the movie tomorrow”
  - Both sound sensible, but
  - “It is predetermined that I will go to the movie tomorrow” sounds stupid

Are there any temporal concepts that we cannot express in English?

Note that we can easily understand temporal concepts we have never discussed before. E.g. Red Dwarf

WARNING: NOTHING TO OUTPUT BFRAME DECODER LAG

Do we need all these tenses?

Damon Runyon:
  - “More than Somewhat” (two stories make up the musical “Guys and Dolls”)
  - “Furthermore”
  - “Take It Easy”
  - collected in “Runyon on Broadway”

Dancing Dan’s Christmas

Now one time it comes on Christmas, and in fact it is the Christmas, and I am in Good Time Charley Bernstein’s little seventh Street, wishing Charley a Merry Christmas and having Jerry’s with him.

This hot Tom and Jerry is an old time drink that is once a country to celebrate Christmas with, and in fact it is once people think Christmas is invented only to furnish an excuse, although of course this is by no means true.

But anybody will tell you that there is nothing that brings a spirit like hot Tom and Jerry, and I hear that since Tom and Jerry in the United States, the holiday spirit is never quite the same.

The reason hot Tom and Jerry goes out of style is because it is necessary to use rum and one thing and another in making Tom and Jerry, and naturally when rum becomes illegal in this country Tom and Jerry is also against the law, because rum is something that is very hard to get around town these days.

For a while some people try making Tom and Jerry without putting rum in it, but somehow it never has the same old holiday spirit, so nearly everybody finally gives up in disgust, and this is not surprising, as making Tom and Jerry is by no means child’s play. In fact, it takes quite an expert to make good Tom and Jerry, and in the days when it is not illegal a good hot Tom and Jerry maker commands good wages and many friends.
Does it translate?

Dancing Dan's Christmas

MAINTENANT une fois il vient sur Noël, et en fait c'est la soirée avant Noël, et je suis en temps illé Charley Bernstein's peu de bar clandestin dans la rue d'ouest Forty-seventh, souhaitant à Charley un Joyeux Noël et ayant quelque Tom et Jerry chauds avec lui.

Ce Tom chaud et Jerry est une boisson ancienne avec laquelle est une fois employé par une et toutes dans ce pays pour célébrer Noël, et en fait il est une fois si populaire que beaucoup de personnes pensent que Noël est inventé pour fournir seulement une excuse pour Tom et Jerry chaud, bien que naturellement ce soit nullement vrai.

Damon Runyon:

• One use of past tense in 800 pages (in “The Lily of St Pierre”)

Non-European Languages

• Have found their own way to handle time
  e.g. Eastern Languages (thank you Cho & Marcus Watson)
  Japanese; no tenses, but concepts conveyed by adverbs
  “I speak futurely”
  “I speak pastly”

• The simplest form of English is pidgin: e.g. in Northern Nigeria, just 3 tenses.
  Present: I eat bread = I am eating the bread
  Future: I go eat bread = I will eat the bread
  Past: I done eat bread = I ate the bread
  Note this leads to oddities such as "I go come" and "I done come"

Chinese works with “particle” words: no exact equivalence in English:

I eat. 我吃饭
I am eating 我正在吃饭 "present" "ing"
I have eaten/I ate 我吃过饭 "过" "ate" presents past tense
I was eating 我正在吃饭
I had eaten 我吃过饭
I will eat 我将会吃饭 "will" presents future tense
I will be eating 我将会正在吃饭
I will have eaten 我将会吃过饭

Yesterday afternoon at 1pm, when I went to visit him, he had eaten his lunch.
今 天 下午1点，我去看他时，他正吃过午饭。
This afternoon at 1pm, when I went to visit him, he had eaten his lunch.
明 天 下午1点，我去看他时，他将正好吃过午饭。
Tomorrow afternoon at 1pm, when I go to visit him, he will have eaten his lunch.
Note that sentences are identical except for particles
No tenses in European sense

Haitian Creole (kreyòl) shows something similar: no conjugation, but uses markers

Present: m ap manje – "I am eating"
Future: mwen pral manje – "I am going to eat"
Past: mwen te manje – "I ate" or "I had eaten"
Past Progressive: mwen t ap manje – "I was eating"
Note much of vocab. is same as French but languages are not mutually understandable!
manje = manger
mwen = moi
Oral cultures tend to have relative time but not absolute time.

Whorf claimed that the Hopi have no word for "time" or "past, present or future", (apparently true) and hence had no concept of time (certainly false, since they have a calendar and understand crop planting etc.

We also use timing to disambiguate language

What did I just say?

Great eyes....Grey ties

They gave her cat-food...They gave her cat food

The Pirahã:

an extraordinary example: the Pirahã: language has

1. No words for colour
2. No words for number
3. No creation myths
4. No words for ancestors

Even taught the Portuguese words for numbers, "not one of them had learned to count to 10 or even to add 1 and 1" New Scientist, March 18th 2006

Some concepts they use do not exist in English: e.g xibipiio = "appear" and "disappear". (note in English a time sequence is implied by the concepts)

and apparently no concept of time in the Western sense

Daniel Everett, "Don’t Sleep, There are Snakes"

How do we visualize “line of time”

In Western culture, future lies before us

“back when I was a child”

“I look forward to Xmas”

Is it universal?

Aymara (Peru) see past in front (where it can be seen) and future behind.

Pormpuraaw (Australia) see past in the east, future in the west

Yupno (Papua New Guinea) see future as uphill, past as downhill, associated with a winding river that flows through their village
Final thoughts on Time and Language

• More advanced the language, more sophisticated the description of time.

Can we argue that language developed to explain our relationship with time?

Are there time-related concepts that we cannot describe in English?

the bad news: **Yes**: will show examples later on

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Why are all languages obsessed with time but not space?

• E.g., “I walked across the room”
• “I (will walk) across the room”
• “I (am walking) across the room”
• But not
• “I (walked leftwards) across the room”
• “I (easterly walked) across the room”

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Maths represents a (more-or-less) culture-free way of describing concepts. Also it allows predictions in a quantitative way.

And finally the **really** bad news

the linear model of time is **WRONG**

So what has culture taught us about time?