



## Tense matters: The preterite and present perfect in scientific texts

by Alistair Reeves

English has an impressive array of tenses to inflict on the reader. Amongst these are the:

**Preterite:** *I took a blood sample.*

(also called the simple past tense and sometimes the imperfect)

And

**Present perfect:** *I have taken a blood sample.*

(past tense constructed with the auxiliary verb 'to have' and the past participle, also called the past perfect)

In this series, I will be looking at their use in scientific *writing*, which is different from other areas of writing, and from *speaking*—and very different from the use of English in informal emails. You will hear and see both tenses used loosely when people speak and in e-mails. In the field of formal writing, I have rarely seen differences between the use of these tenses by authors of American and British English. There is no pattern, so I shall not be looking at any differences in this respect. There are some differences in use of these tenses between spoken American and British English, but these do not lead to confusion and are not our concern here.

To begin with, I will be looking only at the principal differences between the use of the preterite and present perfect in the types of document we write. Even in their simplest contexts, this involves describing some fine nuances in meaning, and I will progress to other niceties that distinguish these two tenses in later articles. Examples of these are the use of the preterite continuous (also sometimes called the imperfect) and the present perfect continuous (*We were investigating; We have been investigating ...*), and how to reflect in writing the stress on the verb or auxiliary verb that we so often use when speaking (Yes, we *investigated* that, but ...; Yes, we *have* investigated that, but ...).

Most documents have sections that broadly correspond to an Abstract or Synopsis, Introduction, Materials and Methods, Results, and a Discussion, and I try to provide some guidance on which of the two tenses is more appropriate depending on the document section. There is, however, overlap, and I illustrate this too.

A linguistic aspect as sensitive as the use of tenses in English means that examples out of context sometimes illustrate only one specific use of the tense, which may be altered by a preceding or subsequent sentence.

Nevertheless, there are basic differences between the preterite and the present perfect, regardless of text.

### A. Basic difference between the preterite and the present perfect

Because they are past tenses, the preterite and present perfect are concerned with things that have happened. The basic distinction in use between the preterite and the present perfect is simple:

**Preterite:** The preterite describes actions completed in the past with no implicit reference to the present (time of writing), and may also be accompanied in a sentence by explicit references to specific periods in the past.

**Present perfect:** The present perfect describes actions that occurred in the past which either have been completed or form part of an uncompleted whole. It contains an implicit reference or link to the present, often made explicit by the addition of more information to this effect, or reflects the effects of past events on the present, and even the future, and it cannot be used together with references to specific periods in the past.

#### Examples of basic difference

[1a] *We investigated the pharmacokinetics of Drug X in rats.*

[1b] *We have investigated the pharmacokinetics of Drug X in rats.*

#### 1 The preterite does not permit time elements which extend to the present or into the future

It is not possible to say: [2a] *To date, we investigated the pharmacokinetics of Drug X in rats.*

This is because the use of the preterite means that the investigations are complete. In [2a], although the pharmacokinetic investigations in rats are finished, the addition of *to date* means that other investigations are (likely to have been) planned in other species and that the entire programme of investigations is not yet complete; we are reporting on what we have done *so far*. Any link in such a sentence from the past into the present requires the present perfect, and is often implicit, as in [1b]. *To date* or some-

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thing similar could be added for emphasis to [1b], but even without this, this sentence means that the pharmacokinetics were investigated at some point between the dawning of eternity and the last second before writing. It will therefore now be clear that if [1b] were preceded by a time-limiting element, the preterite would be appropriate as in [3a]:

[3a] *In the first phase of our preclinical programme, we investigated the pharmacokinetics of Drug X in rats. Similar investigations in dogs are now planned.*

### 2 The present perfect does not permit a time-limiting element in the past

It is not possible to say: [4a] *We have investigated the pharmacokinetics of Drug X in rats last week.*

This applies to time-limiting elements such as *last week*, *between January and November 2006*, *after performing the same investigations in rabbits*, or *before performing pharmacodynamic testing*.

### 3 Context determines whether the preterite or present perfect is appropriate with other limiting factors

Limiting factors are either evident time-limiting factors in the past (*last week*, *during our study*) or factors that are not evidently time limiting (*under the following conditions*, *in the elderly*). When reporting on results, the preterite is more likely to be used with the latter as in [5a]. But it is also possible to use the present perfect as in [5b]:

[5a] *We investigated the pharmacokinetics of Drug X under the following conditions.*

[5b] *We have investigated the pharmacokinetics of Drug X under the following conditions.*

[5a] states that the investigations have been completed, and the assumption is that there will be no further investigations. Although the investigations in [5b] are also completed, the use of the present perfect suggests two things which will *probably* be explained in further text:

- This is what we have done so far and further investigations are planned under other conditions.
- This is what was done so far, and because of the results, we may have to repeat some investigations and possibly also perform further investigations under other conditions.

There is obviously some overlap here, because a further explanation as for [5b] might also follow [5a], but [5b] is more likely to be used in an introduction or discussion section. See also [6b] and the related comments below.

## B. Strict division between the tenses

When reporting on methods or results, this division between the tenses is strictly maintained; in the introduction or discussion, however, there can be overlap because of the context, as you will see below and in the next article.

## Reporting on methods

### 4 The preterite is the appropriate tense for reporting on methods in the 'Methods' section of a document

It means, as in [6a]: 'This is what we did'.<sup>1</sup>

[6a] *An extended dorsal approach was attempted with radial retraction of the extensor pollicis longus tendon under brachial plexus block.*

[6b] *An extended dorsal approach has been attempted with radial retraction of the extensor pollicis longus tendon under brachial plexus block.*

[6b] is a typical sentence for an introduction or discussion section and the use of the present perfect has several implications:

- 'Others' have tried this approach and it is not important when they tried it.
- I am about to tell you more about this.
- I am about to limit or negate this statement in some way, and the nature of the limitation or negation will probably be obvious from the subsequent text.

## Reporting on results

### 5 The preterite is the appropriate tense for reporting on completed results in the 'Results' section of a document

Let us start with the present perfect:

[7a] *The patient has reported three episodes of vomiting in the last 30 minutes.*

This is a finished event in the past, but could only be written immediately after the 'last 30 minutes' had elapsed. Because of the use of the present perfect, 'the last 30 minutes' actually means 'the last 30 minutes I have just experienced', so the statement extends up to the present. It is reporting from the present backwards for 30 minutes, and is largely restricted to spoken use.

Now for the preterite:

[7b] *The patient reported three episodes of vomiting in the last 30 minutes of the infusion.*

Because of the use of preterite here, the 'last 30 minutes' in this sentence are not 'the last 30 minutes I have just experienced' but 'the last 30 minutes up to a time-limiting element in the past' (in this case, the end of an infusion). The preterite is required here, because the sentence is reporting on events up to a defined end in the past, whether the infusion finished only a few minutes before writing (basically still 'now') or several months or even years before.

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<sup>1</sup> The use of 'was/were to be' or 'was/were' in 'Methods' sections is controversial. For simplicity's sake, I prefer to stick to plain 'was/were' when describing methods and point out any exceptions in the results, amendments or protocol deviations sections. Obviously, for major deviations (half of your patients did not fulfil a certain condition, you changed randomization mid-study from 1:2 to 1:3, or a change in a major inclusion criterion), you can resort to 'was/were to be' and give an explanation, since this sort of information should not be withheld from the reader until much later in your text.

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The following examples further illustrate the difference when reporting on results:

[8a] *In 2008, fake consignments have included the antipsychotic Zyprexa.*

[8b] *In 2008, fake consignments included the antipsychotic Zyprexa.*

Although both sentences include the time-limiting element 'In 2008', [8a] could only have been written *during* 2008 (and this means right up to 23:59 on 31 December 2008), and therefore means that these results are interim. The present perfect indicates that up to the time of writing, Zyprexa had already been amongst fake consignments impounded in 2008, and by the end of the year, consignments of other drugs worth mentioning may be impounded. The present perfect is therefore suitable for reporting on interim results (a later article will give further information

on using the preterite and present perfect when reporting on interim results). [8b] could only have been written after the end of 2008. The preterite indicates that all fake consignments impounded included Zyprexa, and, for whatever reason, Zyprexa is the one that we have singled out to mention in this sentence.

In the next article, I will be looking at the use of the preterite and present perfect in the active and passive voices and in more detail at cases where there is overlap between the two tenses.

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## **An International botanists' symposium on bogs (1935)**

Not only manuscript writing but also reports of international scientific symposia were different in the 1930s from those of today as the following extract<sup>1</sup> demonstrates:

"The great bogland behind Errisbeg recalls a quaint scene on a very wet day in August 1935. A number of botanists had foregathered at Roundstone, (Co Galway,) and the particular occasion was a kind of symposium on bogs, held in the middle of one of the wettest of them. There were A.G. Tansley from Oxford, H. E. Godwin from Cambridge, Hugo Osvald from Stockholm, Knud Jesen and H. Jonassen from Copenhagen, G.F. Mitchell from Dublin, Margaret Dunlop from Manchester. We stood in a ring in that shelterless expanse while discussion raged on the application of the terms soligenous, topogenous and ombrogenous; the rain and the wind like the discussion, waxed in intensity, and under the unusual superincumbent weight, whether of mere flesh and bone or of intellect, the floating surface of the bog slowly sank until we were all half-way up to our knees in water. The only pause in the flow of argument was when Jessen or Osvald, in an endeavour to solve the question of the origin of the peat, would chew some of the mud brought up by the boring tool from the bottom of the bog, to test the presence or absence of gritty material in the vegetable mass. But out of such occasions does knowledge come, and I think that that aqueous discussion has borne and will bear fruit..."

With thanks to **Paul Dunne** (pdunne@iol.ie) for providing this extract.

<sup>1</sup> The extract is from Praeger RLI. 1937 *The Way That I Went*, An Irishman in Ireland, Allen Figgis, Dublin 1980, ISBN O 900372 93

## **Until or by?**

One of the most frequent errors I see is the use of *until* instead of *by* in clauses with times, dates and days meaning **at any time up to a specified deadline**. *Until* is **wrong** in all the following sentences:

- We shall send you our comments *until* 13:00 today.
- All responses received *until* end-of-business on Monday next week will be included in the preliminary evaluation.
- Please return your completed patient diary *until* 31<sup>st</sup> July 2009.

In all cases, *by* is correct, and always means that the time specified is the latest at which an action may be completed, but that the action may be completed before.

*Until* usually indicates that an action cannot be started before another action has been completed, as illustrated by the following:

- We shall send you our comments *by* 13:00 today, but cannot do so *until* we have received approval from head office.
- All responses received *by* end-of-business on Monday next week will be included in the preliminary evaluation. However, we shall continue collecting responses *until* Friday, and these will be included in a later evaluation.

*Until* can be used with the meaning **at any time up to a specified deadline** in the following way:

Participants have *until* 13:00 on Monday 12 January to respond. Only responses received *by* then will be included in the evaluation.

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