

Part 1: Scientific analysis of historical events: Five case-studies about: US vs. PRC

第一部分：关于中美的五个案例分析

This part proposes several case studies to illustrate the method of “analytical history”, a scientific and testable analysis of historical events which was introduced in a book published in 2002 (Roehner and Syme 2002). This method relies on the time-honored principles of experimental physics according to which science can begin when, by repeating an experiment, one is able to get (more or less) the same result. Failing that, one is in the domain of anecdotal evidence from which no science can originate. If one accepts that, as many historians say, historical events are unique and cannot be compared to one another, then no testable understanding can be developed. Comparison is really the keystone and hallmark of science. For instance in the field of astrophysics the extrasolar planets are crucial for understanding the creation of our own solar system. Until their discovery, astronomers could observe only one instance. Single instances can be described but they cannot be understood in a testable way.

本书的第一部分将用五个案例研究来阐述比较历史分析学(Comparative Analytical History)这一科学的、可验证的(testable analysis)对历史事件的分析方法(详见本书参考文献列表中的Roehner and Syme 2002一书)。这一研究方法基于实验物理学长期遵循的原则，就是当进行重复试验可以获得相近结果时，我们才认为可以据此得出科学结论。如果实验不能重复，那么它就只是轶事证据(anecdotal evidence)，基于此并不能生发出科学。如果一个人接受轶事证据、认同许多历史学家所说的“历史事件是独一无二，也不能相互比较”的观点，那么这种情形下可验证性就无从谈起了。比较(Comparison)是科学的基石和重要特质之一。例如在天体物理学中，观测太阳系外的星系对于我们了解太

阳系至关重要，有了足够多的观测与对比之后我们更易得出星系运行(甚至星系创生之原理)背后的统一规律(见图4)。在发现太阳系外星系之前，天文学家只能观察到太阳系这一个实例，而单一的实例(single instance)只能被描述而无法通过可验证的方式去理解它们。

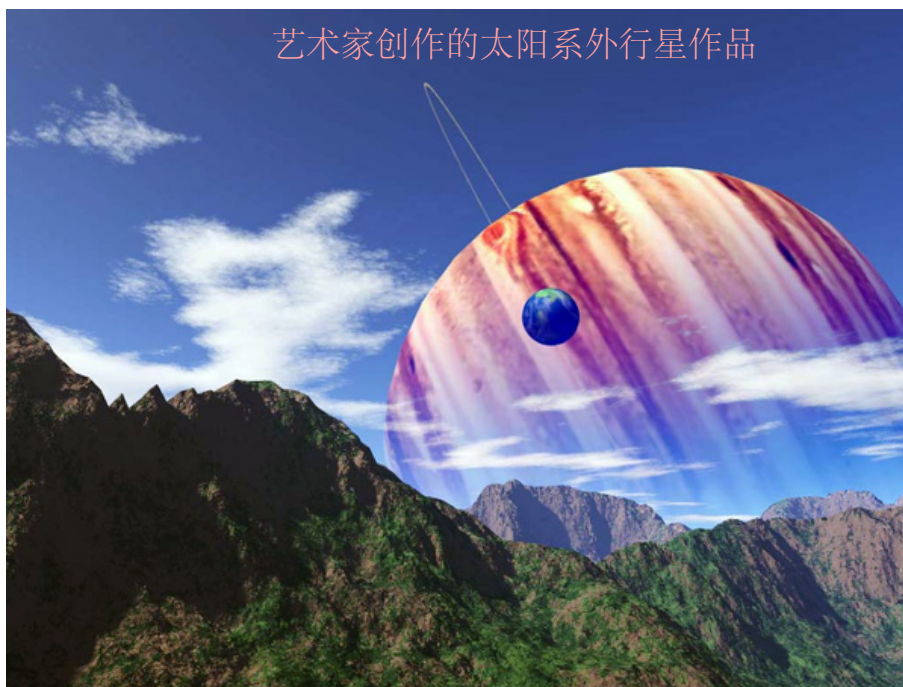


Figure 4: 关于太阳系外行星的艺术作品。比较是科学的关键，知道系外星系的特征可以让我们对于太阳系有更多的可验证性理解；同其他恒星的比较同样可以使得我们验证对于太阳系的理。虽然每一个系外行星或恒星都是独一无二的，但这并不妨碍进行比较。

Chapter 1

What motivated the attack of 11 September 2001? 是什么驱动了911恐怖袭击?

In contrast with forthcoming chapters, this one is not about the US-PRC competition. It should be seen as an illustration of the methodology of comparative analysis that we use throughout the book. In the rest of the book, just to prevent the accounts from becoming too long, comparison will most often be limited to only two or three cases. Here, in contrast, the set of similar cases will contain 9 events. We will also explain in detail how these events should be selected. Obviously, this is a crucial point. In other words, this chapter should be considered as an explanation of the methodology.

与本书其他几章不同，本章案例与美中竞争无关。这一章可以被视为对比较分析方法的一个阐述，而这正是我们在本书中通篇使用的方法。为了防止阐述过长，本书剩下部分中的比较方法通常会被限于两到三个具体事件的比较分析；不过本章中我们的案例集合包含9个事件。我们也会着重详尽阐述为何选择这些事件作为研究集合，这一章可以看作我们对于所使用方法论的解释。

When one tries to explain the methodology of analytical history one of the main difficulties is to find events with which most persons are familiar. This is not easy for, in most countries, the citizens know the history of their own nation but have only a vague knowledge of the history of other countries. For instance, it would be quite interesting to conduct a survey about how much American or French people know about the history of China. In order to overcome this difficulty we examine in this chapter an event with which many may be familiar, namely the attack of September 11, 2001 against the “World Trade Center” in Manhattan.

当我们试图去解释历史分析学(analytical history)的方法论，一个主要的障碍就是找到大多数人熟悉的历史事件。这在大多数国家是不容易的，一个国家的公民通常了解本国历史，但对于其他国家的历史却往往只有一个大概印象。举例来说，如果你做一个问卷来研究美国人或法国人对中国历史有多了解，结果

一定很有趣。为了克服这个困难，我们在这一章节选取的事件是大多数人都熟悉的，就是2001年9月11日发生在曼哈顿的针对世界贸易大厦的恐怖袭击。

In March 2017 one of the authors (BMR) gave a lecture on this question at an interdisciplinary workshop for scientists held in Galway on the west coast of Ireland. As it was a fairly small audience, he started to ask all participants what was their opinion about the motivation of the attack of 9/11. Most of them said it was a way for Al-Qaida to show its strength to the whole world. In other words, 9/11 was seen as a kind of public relations operation without any specific purpose.

2017年3月爱尔兰西部海岸的戈尔韦(Galway)举行的跨学科研讨会上，本书的作者之一Bertrand M. Roehner针对9/11事件做了一个演讲。因为与会者相对较少，他开始问所有的参会者对于9/11事件的动机有何看法。大多数人说这是一种基地组织(Al-Qaida)向世界宣扬他们的力量的方式。换句话说，9/11事件被视为一场并无明确目标的公共关系运作。

In what follows we show that an analysis of 9/11 through the method of comparative analysis leads to a completely different answer.

如果使用比较分析的方法来分析9/11事件，我们将会得出一个完全不同的答案。

However before we start we wish to emphasize that, as any other event, 9/11 can be described in two very different ways.

但是在我们开始分析之前，我们希望强调的是，就像其他任何历史事件一样，9/11事件也可以用两种不同的方式来描述。

1.1 Two modes of description 两种描述模式

Fig. 1.1 illustrates two different ways of describing and analyzing historical events; one is the chronological (also called longitudinal) description while the other is the comparative (also called transversal) description.

图1.1阐述了描述和分析历史事件的两种不同方式：一个是基于时间顺序的(也被称为纵向)描述，而另一种是比较式(也被称为横向)描述。

- The longitudinal description is illustrated on the the left-hand side; it consists in listing what happened in chronological order with as much accuracy as possible. Fig. 1.1 gives 4 important moments but one could give much more. For instance one could record the time when each airliner departed from its airport and what trajectory it followed. This way of describing events is the most commonly used by historians for it is the ordinary way of recounting a story.

图1.1左边所示的纵向描述是尽可能精确地用时间序列还原历史事件。图1.1给出了四个关键时间节点，当然我们完全还可以给出更多的信息，例如还可以记录每一班航线的起飞时间和它们的运行轨迹。这种描述事件的方式是历史学家最为经常采用的方法，因为它是还原事件的基本方式。

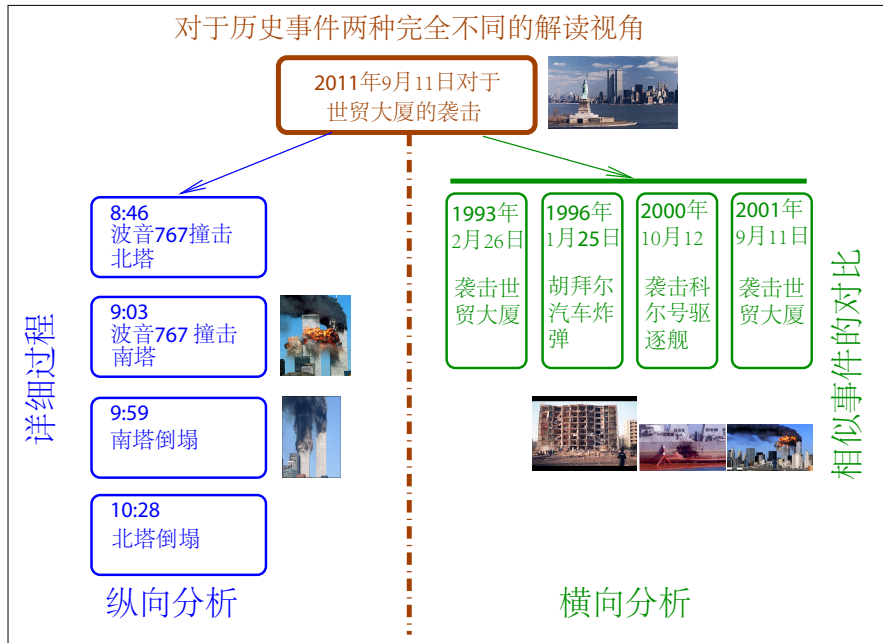


Figure 1.1: 详细的基于时间顺序的描述与相似事件的对比描述。叙写历史的标准方式是按照时间顺序编年而记。想要动用图右侧的比较分析方法，首先要定义何为「相似」。在这个意义上，我们必须明白在物理学中也有这种困惑。比如，牛顿拿苹果的掉落来与地月引力来做类比，但依当年的寻常眼光看来，这两者之间的关联是很微弱、甚至完全不可能的。

- Besides this standard way we introduce a comparative perspective whose objective is to find the core-engine of the event under consideration. For demographic, sociological or economic phenomena such a comparative perspective is commonly used. For instance, one may compare birth rates or suicide rates or national income growth rates in different countries. This is commonly done but usually in a purely statistical way rather than in a problem oriented perspective. However, it is fairly uncommon to use a comparative perspective for historical events such as 9/11. In Fig. 1.1 the events included in the comparative perspective on the right-hand side are four of the events mentioned in Table 1 (it is only for lack of space that the other 5 events cited in the subsequent table were not included).. 除了上面介绍的这种标准方式，我们还可采用一种比较分析的办法，它的目标是在考量后找到事件背后的真正推手或机理。对于人口学、社会学和或经济学现象来说，这种比较方法经常被用到。例如，我们可以拿不同国家的出生率或自杀率或经济增长率来做比较；只是目前这类研究大多是以纯粹的统计方式进行而非以问题导向的方式来研究¹。然而，用比

¹例如现在的网络科学家通常多以统计物理的方法去研究各类复杂系统的问题，但大多研究都是

较方法研究9/11这样的历史事件却并不多见。在图1.1右边的描述方式就采用了比较分析的视角来描述事件的四个节点(表??中的另外五个事件因空间有限没有被列入图中)。

In order to explain more clearly the difference between the longitudinal and transversal descriptions one can consider the simple case of the fall of an apple from a tree. In this case the chronological view would be to describe the steps which led to this event: the apple has become too heavy; its stem has become dry; the branch has been shaken by a gust of wind. Clearly, even the most detailed account will never tell us anything about the force of gravity. In contrast, the comparison with other similar cases such as the fall of pine cones or rain droplets will direct the analysis into the right direction, namely that there is a hidden force which is at work. However, it is only the crucial step taken by Newton who made a parallel with the “fall” of the Moon toward the Earth which eventually revealed the true nature of the force of gravity as well as its universality. 为了更清晰地阐述纵向研究和横向研究之间的区别，我们可以来想想苹果从树上掉落的例子。如果我们从基于时间顺序的角度去描述其发展过程就会是这样：苹果变得太重了；树干变得干了；树枝被会大风吹得摇摇欲坠。但即使是最详细的描述也显然不会告诉我们任何关于重力的知识。与此相对的是，如果将苹果坠落的例子和其他相似例子(如松果和雨滴掉落)进行比较就可以将分析引入正确的轨道，我们或许就可以发现有一股隐藏的力量驱使着它们掉落。直到牛顿将苹果掉落与地月关系做类比，才最终迈出了揭示重力本质及其普遍性的最关键一步。

As revealed by the example of the fall of the apple, the main difficulty is to define the comparison set in an appropriate way. Here we explain how this can be done in the case of the 9/11 event.

就像苹果掉落的例子所提示出的问题，比较研究的主要问题是要适当地定义比较集合(comparison set, 例如苹果掉落、雨滴坠落与地月关系这三者就是一个适当的比较集合)。下面我们就来解释如何定义9/11事件中的比较集合。

1.2 Unraveling the attack of 9/11 透视9/11事件

In discussing the occurrence of historical events, usually not just one but rather several factors can be mentioned as possible causes. Thus, for the Great Depression in the United States there were financial causes such as the stock market crash of October 1929 or economic causes such as the world wide overproduction of grains. On the contrary, for an event like the attack of September 11, 2001 there can be only one factor. The reason is simple: 9/11 was planned by a small group of people in the same way as a military action is planned by army headquarters in time of war. Needless to say, any military action has a

去寻找一些统一的统计规律，而非完全针对于某一问题进行更为深入的研究。

well defined purpose. In a similar way, the master minds of 9/11 certainly had a definite objective. What we wish to prove is that their objective was to obtain that US troops leave Saudi Arabia.

在讨论历史事件的成因时，通常都不是由单一原因而是多种因素引发的。因此，对于美国经济大萧条的成因，有经济原因，比如1929年10月股票市场崩盘，也可能是因为世界范围内谷物的过度产出。相反的，低于9/11事件来说，成因可能只有一个。原因很简单：9/11事件是被少数人群策划，这和战时军事基地策划军事行动是一样的，更不要说，任何军事行动都有明确的目的。同样的，9/11事件背后的主脑也有明确的目标。我们要证明的是他们的目的是想要美军撤离沙特阿拉伯。

However, nothing convincing can be said if the analysis is limited to a single event. In contrast, from a comparative perspective it becomes fairly clear that 9/11 was in protest to the presence of US troops in Saudi Arabia. Once a whole family of similar events has been selected (Table 1.1) one can give the following arguments. 但如果所有分析只是局限在单一事件中仍不够有说服力。相比之下，从比较研究的角度来分析9/11事件，其背后的动机就变得很清晰了—正是为了反抗美国驻军沙特阿拉伯。当我们将一系列相似事件放到一起(详见表1.2)研究时，就可以得出以下论断：

1 US forces stayed in Saudi Arabia from 7 August 1990 to August 2003. This was perceived as an outrage against Islam. Saudi Arabia has a special status with respect to the stay of “infidels” (i.e. non-Muslims). The city of Mecca in the south-west of Saudi Arabia is considered the holiest city in Islam; only Muslims are allowed to enter it. Medina (500 km north of Mecca) is considered the second holiest city and similar to Mecca, non-Muslims are prohibited from entering the sacred core of Medina. Since 1986 the Saudi King bears officially the titles of “Custodian of the Two Holy Mosques” and “Servant of the two holy places: Mecca and Medina”. Between 1990 and 2003 there were 9 bold, high profile attacks against embodiments of US power such as embassies, ships, troops or the World Trade Center. These attacks are listed in Table 1.

(1) 美军从1990年8月7日到2003年8月驻扎在沙特阿拉伯。此举被认为是美国迁怒于伊斯兰教的行动。沙特阿拉伯对于异教徒(比如，非穆斯林)来讲地位比较特殊：沙特阿拉伯西南部的麦加是伊斯兰世界中最神圣的城市，只有穆斯林教徒才可进入；麦地那(麦加往北500公里)是第二神圣的城市，而且其与麦加相仿，亦是非穆斯林不得进入麦地那的神圣中心。自从1986年沙特国王就正式接受了“两大神圣清真寺的守卫者”、“麦加和麦地那两座圣城的仆人”这两个头衔。在1990年和2003年期间，就有9起针对美国(包括大使馆、舰船、军队以及世贸大厦)的大胆高调的行动(这些攻击详见于表1.2)。

After August 2003 there were no other attacks of that kind. In 2003 Saudi Arabia denied the United States permission to use its facilities at Prince Sultan Air Base to attack Iraq.

自2003年8月之后上述提及的高调袭击就再未发生过了。沙特阿拉伯在2003年还拒绝了美军使用苏丹王子空军基地(Prince Sultan Air Base)去攻击伊拉克。

2 The attacks which took place in Saudi Arabia were directly aimed at American personnel.

(2) 在沙特阿拉伯发生的袭击都是直接针对美国有关人员。

3 The attacks of 1998 on the US embassies in Kenya and Tanzania took

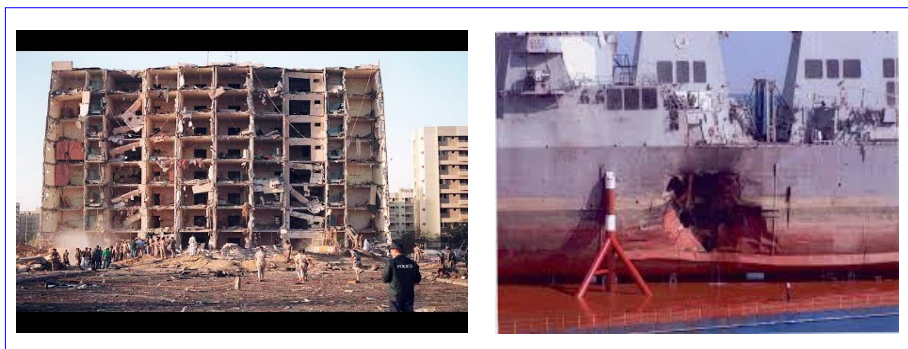


Figure 1.2: 发生于沙特阿拉伯和亚丁港的炸弹袭击。(a)达兰市(Dhahran)的胡拜尔大厦(Khobar buildings)住着2000名被派遣到附近达兰空军基地(现在叫做阿卜杜勒阿齐兹国王空军基地, King Abdul Aziz Air Base)的美国空军士兵。在1996年一个汽车炸弹袭击了这其中的一幢楼。(b)在2000年美军驱逐舰科尔号(destroyer USS Cole)在亚丁港补给时被袭击。这张照片拍摄于其被装载于营救船上即将运回美国之时。在美军撤离后, 这种引人注目的高调袭击(high profile attack)再无发生。

place on 7 August which, it is said, was the day when US troops had arrived in Saudi Arabia 8 years earlier. Following the attacks, a group calling itself the “Liberation Army for Holy Sites” took credit for the bombings. However, in the Wikipedia article about the bombing this claim is dismissed.

(3) 美国驻肯尼亚和坦桑尼亚大使馆于1998年8月7日遭到袭击, 而8月7日正好是美军8年前首次抵达沙特阿拉伯的日期。这些袭击之后, 一个自称“圣地自由卫军(Liberation Army for Holy Sites)”的组织宣称对炸弹袭击负责。然而在相关的维基百科的文章中关于炸弹袭击的这一负责声明却并未出现。

4 Nine of the fifteen persons who took part in the attack of 9/11 were Saudi citizens.

(4) 参与9/11事件的十五个人中有九个是沙特阿拉伯人。

We said that these actions were high profile attacks. This is obviously true for the 9/11 attacks and the attack against the warship USS Cole, but the other attacks also showed careful preparation and high technical competence. For instance, despite being about 800 km apart the two attacks in Nairobi and Dar es Salaam occurred almost simultaneously at 10:30am and 10:40am respectively and used bombs which had a power equivalent to 10 tons of TNT.

我们宣称这些行动都是高调的袭击事件, 这在9/11事件和针对美军驱逐舰科尔号的袭击中体现得很明显, 而且其他行动也显现出了高科技技术和精心策划。虽然内罗比和达勒思萨勒姆相距800公里之遥, 但两地的爆炸袭击却几乎同时发生(二者分别发生在在上午10: 30和10: 40), 而且(爆炸中)使用了10吨TNT当量的炸弹。

It can be observed that in the articles published in the “New York Times” about the attacks that took place in Saudi Arabia it is of course mentioned that they were in protest against US presence in Saudi Arabia. Yet, in the attacks

carried out in other countries this reason is hardly ever mentioned.

《纽约时报》上关于在沙特发生的对美袭击的文章当然提及了这些袭击是为了抗议美国在沙特阿拉伯驻军。然而，对于发生在其他国家的对美袭击的报道，这一原因却鲜有提及。

1.2.1 Answer to a possible objection 对于可能的反对声音的解答

A possible objection to the previous explanation may come to mind. If the attacks were a protest against the presence of US forces in Saudi Arabia why were they not all carried out on Saudi soil? One possible answer is to observe that as Saudi Arabia is a very repressive regime, it may have been difficult to set up appropriate networks there. Similarly one can suppose that the attacks of Nairobi and Dar es Saalam may have been decided because networks already existed there. In order to check the validity of these explanations one would need detailed knowledge of how the attacks were planned.

或许有人会对上述的结论有所疑虑：如果这些袭击都是对美军驻扎沙特的抗议，那为什么并非所有的袭击事件都发生在沙特国土上？一个可能的解释是沙特阿拉伯是一个非常专制的政权，反抗组织要在这里建立联络是很困难的。同样的，我们也可以认为袭击之所以会在内罗比和达勒斯萨勒姆发生，很可能是因反抗组织在那里已经有一定根基和联系了。为了证实我们提出的解释，我们就需要更详细的关于袭击是如何被策划出来的资料。

1.2.2 Just another conspiracy theory? 只是另一个阴谋论(conspiracy theory)?

It is a common rule that every terrorist attack brings about a number of conspiracy theories. It could be argued that our interpretation is nothing more than such a conspiracy theory. There is a major difference, however in the sense that almost all conspiracy theories focus on only one case for which they claim to provide new (and often unverified) information. As they are about only one case, these theories are not testable. In contrast, by including a set of cases, our explanation becomes testable. Thus, the occurrence of a high profile attack directed against US interests in Saudi Arabia after the withdrawal of US forces would throw our interpretation into doubt. It would not completely contradict it for there can of course be two separate and overlapping terrorist campaigns under way at the same time. This, however, would make the task much more difficult for one would need to identify two strains instead of just one.

现在人们已经有这样一个共识，那就是每次恐怖袭击都会引出很多阴谋论。我们的解释也可能被认为不过是一个阴谋论，但我们的解释与阴谋论有一个很大的区别：几乎所有的阴谋论都聚焦于单一事件，并声称能提供新的(但通常未被证实或无法验证的)信息。由于这类阴谋论通常只是针对单一事件，所以这些理论就不可验证。相比之下，通过分析一系列相似案例组成的集合，我们的理论是可以验证的。因此，如果在美军撤离沙特后，如果仍有针对美国利益集团的高调袭击事件发生，那么我们的理论确实就值得怀疑了(事实上自那之后确实再未发生此类高调袭击事件)。另外一种更复杂的情形会是同一时间段内正好有

两个独立又有关联的恐怖袭击活动一同发生，对于分析这种情况会更困难一些，因为会需要仔细辨别以得出两个事件集合而不是一个。

1.3 How to select the events which belong to the same strain?

如何辨别哪些事件属于同一事件集合？

The previous example can illustrate an important aspect of the comparative methodology, namely the selection of events which can be considered as belonging to the same family of recurrent events. During the time interval considered in Table 1 there were also other attacks that we did not include. For instance, we did not include the Oklahoma bombing of 19 April 1995, the Bali bombing of 12 October 2002 and the Mombasa attack of 22 November 2002.

Why?

上面的例子阐释了比较方法论(comparative methodology)的一个重要方面—那就是首先须要找出与某一重复出现的现象所相关的事件的集合²。在表1.2所示的时间区间内，有些其他的袭击事件就并未被纳入我们考虑的范畴。举例来说，我们就没有考虑1995年4月19日发生在俄克拉玛州的炸弹袭击(Oklahoma bombing)、2002年10月12日的巴厘岛炸弹袭击(Bali bombing)以及2002年11月22日的蒙巴萨岛的袭击(Mombasa attack)。

为什么呢？不妨让我们来对这三个事件进行逐一分析：

- Oklahoma bombing, 19 April 1995. A powerful car bomb exploded outside a federal building killing 165 persons. If one remembers that apart from other federal services the building also housed the US Secret Service and recruiting offices for the US Army and Marine Corp one can say that the attack was clearly directed against US interests. However, the reason of the attack was completely different from those listed in Table 1. As often, the date of the attack gives an indication. On April 19, 1993, a standoff between FBI agents and Branch Davidians ended in a fire that destroyed their compound near Waco in Texas killing 76 occupants. Also (but perhaps unrelated) on the very day of the attack Richard Snell, the founder of a US supremacist group who had contemplated an attack on the same building, was executed for murder in Arkansas.

俄克拉玛州炸弹袭击(1995年4月19日)。一座联邦大厦外一个威力巨大的汽车炸弹爆炸使得165人不幸丧生。这座联邦大厦除了是联邦办公地点也是美国的情报机构，同时还是美国陆军与海军募兵办公室的所在，可以说这次炸弹袭击是直接针对美国利益的。然而此次炸弹袭击的原因却和表1.2中所罗列事件的原因完全不同。就像在其他案例中一样，

²If in the past we can identify a series of events which tend to repeat themselves this regularity can be used to make predictions for similar events in the future. A similar approach was developed by Prof. Jürgen Mimkes (Mimkes 2017).

如果我们可以从过去发生的众多事件中找出一系列倾向于不断重复发生的事件的集合，那么这种重复发生所带来的规律性就可以被用来预测未来类似事件的走向了。米姆克斯(Jürgen Mimkes)教授就曾提出过类似的方法(Mimkes 2017)

袭击所发生的时间往往能够给出重要的提示。袭击发生于1995年，但我们不得不提及1993年4月19日发生的一件轰动美国全国的事件：大卫教派(Branch Davidians)本是美国的一个起于1934年的基督教新兴教派，由保加利亚裔美国人维克多·豪迪夫(Victor Houteff, 或译维克多·胡太佛)创立，后来分裂为不同派别。大卫·考雷什(原名Vernon Howell, 1990年改名David Koresh)所领导的其中一派在德克萨斯州韦科附近屯积了大量的军火，被发现后他们拒绝交出枪支，反而退守于其在当地的山庄与FBI对峙。FBI特工和大卫教派的对峙最终以进攻时引出的大火及进而导致的爆炸而结束，此次行动中中共有76名(也有说法是76名)大卫教派信徒丧生。也有另一种猜测是认为这一袭击事件是为了报复政府将理查德·斯奈尔(Richard Snell)于1995年4月19日处死(他曾在阿肯色州犯下谋杀罪)。斯奈尔是出名的杀人狂魔、美国至上主义团伙的首领，而且他于80年代就曾试图炸毁这座联邦大厦。所以这次的袭击主要是为了报复当年的大卫教事件而与美国驻军沙特毫无关联。

- Bali bombing, 12 October 2002. One obvious reason for not including the Bali bombing is that it was not directed against US interests. Of the 202 persons killed only 7 were US citizens whereas 88 were Australians. However, this criterion alone may not be sufficient for in the Nairobi bombing there were also over 200 fatalities of which only 12 were US citizens. In addition it is true that in Bali almost at the same moment (in fact a few minutes earlier) a small bomb detonated outside the US consulate in Denpasar, the capital of the Bali province. However it caused no death and only minor damage.

巴厘岛炸弹袭击(2002年10月12日)。不考虑巴厘爆炸案一个显而易见也最为关键的原因是这次袭击并不是针对美国。而且在死亡的202人中，只有7人是美国公民却有88人是澳大利亚公民。当然如果只用美国公民伤亡人数这一单一标准并不充分，它只能被看作一个辅助判据(因为在内罗毕的炸弹袭击中，虽有超过200人丧生，也只有12人是美国公民)。

就在巴厘岛炸弹爆炸的同时(事实上可能早几分钟)，一个小型炸弹在巴厘岛省会登巴萨(Denpasar)的美国领事馆外被引爆，然而它并没引起伤亡只造成了较小的破坏。这一袭击虽是直接针对美国，但其炸弹技术并不成熟，因而也不能称作高调袭击(high profile attack)。

- Mombasa (Kenya), 28 November 2002. A car bomb exploded outside the "Paradise Hotel", an Israeli-owned hotel, killing 13 and injuring 80. Among the dead there were 3 Israelis and 10 Kenyans. Almost at the same time attackers fired two surface-to-air missiles at an Israeli charter plane which missed their target.. Obviously these attacks were not directed against US interests. A group which claimed responsibility for the attack said it wanted to draw attention on the plight of Palestinian refugees on the 55th anniversary of the partition of Palestine. Indeed, the date of the attack was one day before the anniversary day of the United Nations vote of 29 November 1947 which decided the partition.

蒙巴萨岛(肯尼亚，2002年11月28日)。一个汽车炸弹在一家以色列人开的“天堂旅馆”外爆炸，导致13人丧生，80人受伤；死者中有3个以色列人

和10个肯尼亚人。几乎同时，袭击者朝以色列专机发射了两枚地对空导弹，不过均未击中目标。这些攻击很显然并不是针对美国。一个宣布对此次袭击负责的组织说这次行动是想要在巴勒斯坦分裂55周年这个时间节点上引起对于巴勒斯坦难民所处困境的注意。袭击的日期往后推一天便是55年前联合国投票通过巴勒斯坦分裂的日期。

- One can also mention that on 8 November 2003, a suicide truck bomb exploded in Riyadh in the Muhiya residential area inhabited by Saudis and Arab foreigners. Some 18 persons were killed but the selection of the place reveals that this attack did not target US interests, at least not directly.

有人可能还会提到2003年11月8日发生在利雅得Muhiya居民区的自杀式卡车炸弹袭击，事发地居民多为沙特人和其他阿拉伯国家公民。袭击造成了其中18人死亡，但爆炸地点的选择表明袭击目标并不是美国利益集团(至少不是其直接目标)。

On the other hand it should also be mentioned that some high profile attacks occurred before the time interval considered in Table 1.1. For instance, the Beirut car bombing of 23 October 1983 which was directed against the barracks of US Marines and French servicemen was also a high profile attack. It was even said that it used the same kind of explosive (namely a gas enhanced device) as the bombing of 1993 against the World Trade Center. It is still unclear who planned the attack but its level of sophistication suggests that it benefited from the resources of a government.

还有一点必须提及的是，有些高调的袭击在表1.2对应的时间段之前就已经发生了。例如1983年10月23日的贝鲁特(Beirut)汽车爆炸案就是针对美国海军军营和法国军人的。甚至有传言说，那次袭击使用的炸弹和1993年袭击世贸中心的炸弹用的是同一种爆炸物(一种汽油炸弹装置)。究竟是谁策划了那次袭击至今仍是个谜，但从其展现的复杂程度和成熟程度来看，那次袭击或许是从某个政府在暗中提供物资甚至策划支持。

In the present case the distinction between events which should be included and those which should be excluded was fairly clear. However, it should be observed that it would be difficult to define strict criteria. Many factors may play a role such as the date of the attack or the technical characteristics of the bomb. As we will see in a moment one meets the same difficulty in medicine and even in physics.

在我们本章的案例分析中，对于一个特定事件是否应被认定为相关或不相关，其标准还是很明了的；但我们也得承认，想要定义出严格的划分标准并非易事，因为诸如袭击日期、袭击中炸弹的技术特征都会是重要的因素。后文中我们会看到，对于医学甚至是物理学也会遇到同样的问题。

1.4 Bombing by western aircraft and terrorist attacks

西方战机曾投放的炸弹和恐怖袭击

Here is another case in which the possible motivation of terrorist attacks was covered up whether intentionally or not. Between November 2015 and May 2017 there have been many terrorist attacks in France carried out by so-called jihadists. Often in the message that they left behind them before engaging in the attack and being killed, the perpetrators stated that it was in retaliation of bombings conducted in Iraq by French aircraft. However, as a French citizen, one of the authors (BMR) was very surprised that in their accounts and comments French media hardly ever mentioned such possible links. Was that attitude sheer blindness or was it by purpose lest the public may ask bombing missions to be discontinued?

我们不妨先通过另外一个例子来看是否恐怖袭击的动机被媒体或官方有意或无意得隐藏起来了。在2015年11月和2017年5月期间，自称圣战者(djihadist)的恐怖分子在法国制造了多起袭击。他们常常在发动袭击或被杀前留下遗书，声明这些袭击是为了报复法国空军在伊拉克战争中实施的轰炸；本书的作者之一Bertrand是法国公民，他发现法国媒体几乎从未提及袭击事件的发生与这些恐怖分子留下的遗书所传递出来的信息之间的可能联系。法国媒体的这种态度究竟是未发现此种可能的联系？还是故意故意避开，以免公众可能会问及炸弹袭击何时会终止？

As a specific case one can mention a failed bombing attack on 19 June 2017. The jihadist named Adam Djaziri rammed his car into a police van in Paris, and was killed in the accident. Gas containers and several weapons were allegedly found in the car. A few days later the media revealed that on 29 May Djaziri had sent letters to several newspapers. Of this 6-page document the media gave only one sentence, namely that he asked the French government to discontinue the bombings by French aircraft in Syria. However, in line with all other cases, this single sentence was immediately dismissed and forgotten.

作为一个特殊案例，我们不妨来看一下2017年6月19日一次未遂的炸弹袭击。一个名叫Adam Djaziri的圣战分子在巴黎驾驶自己的车冲向一辆警车，他本人在事故中丧生；据称有燃气罐和数把武器在他车内被搜出。媒体在几天后披露了Djaziri于5月29日寄给多家报纸的信件。在这个长达6页的文件中媒体只给出了一句话，就是他要求法国政府终止在叙利亚的轰炸。然而就像其他案件中的那样，这一句话很快就被遗忘了。

Instead of remaining focused on France we should of course consider similar cases. After the attack of 22 March 2017 in London, one of the authors (BMR) asked one of his English colleagues whether the British media had acknowledged a possible connection with the participation of British aircraft in the bombing of Iraq and Syria. It seems that, as in France, such a link was almost never mentioned.

除了法国的案例，我们当然也应该考虑其他国家类似的事件。在2017年3月22日的伦敦袭击后，本书的作者之一Bertrand曾向他的一位英国同事问及英国媒体有没有承认这次袭击可能与英军参与轰炸伊拉克和叙利亚有关。从事实来看，

英国媒体也像法国媒体那样，对这一可能的联系几乎从未提及。

We can broaden the field of observation even more. It turns out that there have been similar attacks in Australia, Belgium, France Germany, Russia, Sweden, the UK and the US. Of these countries, Sweden is the only one which does not conduct bombing missions. Conversely, it seems there is only one country, namely the Netherlands, which had done bombing missions without however experiencing a terrorist attack (at the date of 13 May 2017).

我们可以将观察的范围再扩大一些。事实表明在澳大利亚、比利时、法国、德国、俄罗斯、瑞典、英国和美国都曾有过类似的袭击事件发生；瑞典是这些国家中唯一一个没有参与过轰炸行动的国家³，而荷兰则是唯一一个参与了轰炸行动却没有遭受过恐怖袭击的国家(截至2017年5月13日是这样的)。

In short, even independently of the statements left by the perpetrators, the comparative analysis and particularly the high correlation between bombing missions and attacks suggests the existence of a close link. Clearly this raises the question of why the cover up of this connection by western media is so well respected. Are they not said to be “free media”?

简而言之，即使是没有恐怖袭击作案者所留下的遗书宣言，通过比较分析我们也能发现参与轰炸行动和遭受恐怖袭击之间存在很紧密的联系。这显然会引出一个问题：为什么西方媒体要试图掩盖这一可能的关联呢？他们难道不是自称“自由媒体”吗？

1.4.1 Definition of families of “similar” phenomena in physics 物理学中对于“类似”现象集合的定义

Experimental physics, which so far has been the most successful of all scientific fields, is entirely based on comparing the results of experiments performed under different conditions. In other words, for physicists the comparative approach presented in this chapter should be quite natural. That was indeed the case at the end of the 19th century but no longer nowadays because over the past century physics has become more and more guided by theory. In a highly developed science like physics, although observation is still essential, the theory allows many things to be predicted. On the contrary, in the early stages of a new science, the main challenge is to build solid foundations by careful comparative observations (just as was done by Tycho Brahe and Kepler)

实验物理学可能是现代科学领域最成功的学科，而它是完全依赖于比较不同情况下的实验结果。换句话说，对于物理学家而言这一章所呈现的比较方法是很自然而然的事情。诚然，经过过去一个多世纪的发展，物理学虽然已经可以仅理论推导便得出许多新结论(当然对比实验依然重要)，但更应注意的是，比较分析在物理学的初期阶段发挥了重大作用；因为在一个学科起步阶段，最大的挑战便是通过仔细的观测对比来建立稳固的基础(而这正是第谷与开普勒当年所做的事情)。

We have said above that even in physics it is not always obvious to decide whether an observation should be included into one family or another. This can

³Canada conducted only refueling and reconnaissance missions.
加拿大只进行了燃油补充和侦察任务。

be illustrated by the case of the free fall of an object. Ideally, free fall means fall in vacuum. However, if the density of the object is much higher than the density of air then a fall in air can be considered as a free fall. However, as the density of the object decreases the fall will less and less follow the law of free fall. Whether a given observation should be included into the “free fall family” or into the “viscous medium fall family” depends very much upon what is the accuracy of the measurement.

我们在前面曾提到即使是在物理学中，要把一个观测归入某一现象对应的集合或其他现象对应的集合也不是显而易见的。我们仍拿物体的自由落体来阐述。理想情况下，自由落体意味着在真空中下落；然而，如果物体的密度远大于空气的密度，那么这个下落可以被认为是自由落体；但是如若物体的密度逐渐变小，那么这个落体就会越来越不遵循自由落体的规律。所以某一观测是应被归入“自由落体集合”还是“粘性介质落体集合”就会在很大程度上取决于测试方法的准确性，而不再那样显而易见了。

1.5 Why a high noise level complicates scientific analysis

为何高信噪比(high noise level)会使得科学分析更复杂

Another observation may be of interest regarding the question of making comparisons in experimental physics.

当论及实验物理学中的比较分析时，另一个现象就很有趣了。

It turns out that the first accurate test of Newton’s law was based on astronomical observations for the planet Mars done by Tycho Brahe and Kepler. At first sight this could appear surprising. Would it not have been easier to set up an experiment in the laboratory?

对于牛顿定律的第一次准确验证是建立在第谷·布拉赫与开普勒对于火星的观察之上的，这一说法乍看起来似乎很令人惊讶—在实验室中设计实验来验证牛顿定律难道不会更简单吗？

What made planets of great interest is the fact that they are moving without friction, a characteristic which is not easy to implement in laboratory experiments. The movement of a pendulum is probably one of the closest approximation of an experiment with little friction. Not surprisingly, from Galileo (1600) to Friedrich Bessel (added mass, 1828), to Leon Foucault (rotation of the Earth, 1851), the pendulum played a great role in the development of classical mechanics.

行星之所以更让物理学家感兴趣是因为它们的运行不受摩擦力影响，而这个特征是极难在实验室环境中实现的；钟摆的运动可能已经是最接近于微摩擦力的实验了。所以不足为奇的是，从伽利略(Galileo 1600)到弗里德里希·贝塞尔(Friedrich Bessel, 其主要贡献是关于附加质量(added mass)的研究, Bessel 1828)再到里昂·福柯(Léon Foucault, 其主要贡献是关于地球自转的研究, Foucault 1851), 钟摆在经典力学的发展过程中起到了举足轻重的作用。

For the same reason, it was much more challenging to understand experiments whose results change when they are repeated. That is the case of experiments which involve turbulence or quantum mechanical effects. It is hardly surprising that the explanation of such phenomena occurred only in the 20th century. For instance the photoelectric effect was investigated by Albert Einstein in 1905 and his predictions were confirmed experimentally by Robert Millikan in 1914. Both Einstein and Millikan were awarded the Nobel Prize for their discovery.

也是出于上文提及的原因，当重复实验的结果不同时要去解释这些实验是很有挑战性的—涉及到湍流现象(turbulence)和量子力学效应(quantum mechanical effects)的实验往往就是如此；所以由于其复杂性，对于这类实验直到20世纪(而不是更早)才得以被解释并不另人惊讶。阿尔伯特·爱因斯坦在1905年研究了光电效应，而他的预测被罗伯特·密利根在1914年通过实验证实；爱因斯坦和密利根为此赢得了诺贝尔奖。

The previous discussion can be summarized by saying that observations in which the signal to “noise” ratio, s/n , is low are much more difficult to understand than those for which this ratio is high.

对于之前的讨论我们可以这样总结：信噪比(signal to “noise” ratio, 记作 s/n)高的现象比信噪比低的现象更难以理解。

1.5.1 High level of noise in recurrent historical events 当前历史事件中的高信噪比

Because recurrent historical events may contain a high level of noise their observation and interpretation may be tricky. However, there can be little doubt that by increasing sufficiently the size of the sample of events one will be able to extract the same kind of regularities as observed in physics. By making historical records more easily available worldwide, the Internet will greatly facilitate this quest.

由于历史事件可能有更高的信噪比⁴，所以相应的观察和解读就会变得更加棘手。当然毫无疑问的是，随着历史事件样本数量不断增加，我们终可提炼出类似于物理学定律的规律。而且现今发达的网络科技亦可以让历史记录数据在全球范围内更加易得。

⁴Moreover, in contrast with turbulence or quantum effects this noise is not purely random which creates an additional difficulty.

而且与湍流、量子效应不同的是，历史事件中的噪声并非完全随机，而这会让分析更加困难。

年份	日期	地点	美死亡人数	描述
	1990	08/07	沙特	第一批美军部队抵达沙特阿拉伯
1	1993	02/26	纽约	6 针对世贸大厦的第一次袭击
2	1995	11/13	利雅得	5 对美管理的沙特国民警卫队训练中心的轰炸
3	1996	06/25	达兰	19 针对阿尔科巴尔居民区的汽车炸弹袭击
4	1998	08/07	内罗毕	12 针对美国大使馆的汽车炸弹袭击
5	1998	08/07	三兰港	0 针对美国大使馆的汽车炸弹袭击
6	2000	10/12	亚丁湾港	17 针对美海军科尔号驱逐舰的炸弹袭击
7	2001	09/11	纽约	2,600 针对世贸大厦双子塔的袭击
8	2002	10/08	法拉卡岛	1 在美国海军训练时发动的袭击
9	2003	05/13	利雅得	9 四起同时对西方飞地(enclave)的轰炸
	2003	08/26	沙特	最后一批美国空军撤离沙特

备注: 内罗毕在肯尼亚, 达勒斯萨勒姆(Dar es Salaam, 又名三兰港)在坦桑尼亚, 亚丁港(Aden Harbour)在也门, 法拉卡岛(Failaka Island)在科威特。1998年8月7日的炸弹袭击正好发生在美军首次抵达沙特阿拉伯的8年后的同一天。据1996年6月26日《洛杉矶时报》报道, 23名美国人在此次袭击中丧生。2003年5月13日的炸弹袭击发生在美国国务卿科林·鲍威尔(Colin Powell)访问利雅得期间。

资料来源: 多数文章来自《纽约时报》; 下述文章来自于维基百科和CNN:

(1) https://en.wikipedia.org/wiki/1993_World_Trade_Center_bombing

(2) http://edition.cnn.com/WORLD/9511/saudi_blast/11am/

(3) https://en.wikipedia.org/wiki/Khobar_Towers_bombing

(4,5) https://en.wikipedia.org/wiki/1998_United_States_embassy_bombings

(6) https://en.wikipedia.org/wiki/USC_Cole_bombing

(7) https://en.wikipedia.org/wiki/September_11_attacks

(8) https://en.wikipedia.org/wiki/Faylaka_Island_attack

(9) https://en.wikipedia.org/wiki/Riyadh_compound_bombings

时间线: https://en.wikipedia.org/wiki/List_of_terrorist_incidents_in_Saudi_Arabia

美军部队撤离: https://en.wikipedia.org/wiki/United_States_withdrawal_from_Saudi_Arabia.

Table 1.1: Attacks against US interests brought about by the presence of US troops in Saudi Arabia

由于美国在沙特驻军进而导致的以打击美国利益为目的的袭击事件