



北京大学
PEKING UNIVERSITY

科学技术与医学史系

DEPARTMENT OF HISTORY OF SCIENCE,
TECHNOLOGY AND MEDICINE

SCIENCE, TECHNOLOGY AND SOCIETY

Academic Year: 2022-2023

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QUIZ

October 11, 2022

Test duration: 1.5 hours

STUDENT NAME: _____



GENERAL INSTRUCTIONS:

- Sign your name on the first page and at the bottom of all other pages.
- Laptops, tablets, smartphones (etc.) are not allowed during the test.
- You may not consult your notes, *The Science Studies Reader*, Sergio Sismondo's textbook or any other articles and book chapters we have read so far.
- A Chinese translation of the whole test is offered below. In case of ambiguity, please ask the instructor.

GRADING:

Each **closed-ended question** has one (and only one) correct answer.

Your responses to the closed-ended questions will be graded as follows:

-2 (wrong answer);

0 (no answer);

1 (correct answer).

Your responses to the **open-ended questions** will be graded as follows:

-1 (off-topic or clearly inaccurate response)

0 (no answer);

1 (fair response);

2 (excellent response).

Keep your answers to open-ended questions reasonably short (ideally less than 200 words). If you need more sheets, ask the instructor for them or use the back of the last sheet. It is preferred that answers be in English (for ease of correction by the instructor), but you may write in Chinese, if you prefer.

You will be offered the opportunity to make a few extra points, should that be necessary.

On pp. 9–11 you will find **four bonus open-ended questions**. They are labeled B1, B2, B3, B4, and you will be allowed to choose *a maximum of two* (entitling a maximum of 4 bonus points). These bonus questions may offer you insights for writing your research papers at the end of the course.

MAXIMUM SCORE: 20 points (plus up to 4 bonus points, if necessary).

The final grade depends on the percentage of the maximum score you get: 95% or more of the maximum score, grade: A+; between 90% and less than 95%, grade: A; between 80% and less than 90%, grade: A-, between 70% and less than 80%, grade: B+, etc.



1) Technological determinism is the idea that:

技术决定论是这样一种观点:

- the properties of available technologies determine social events,
现有技术的属性决定了社会事件,
- the properties of a given society determine technological development,
一个特定社会的属性决定技术的发展,
- the properties of available technologies (i.e., material forces) determine the development of science,
现有技术的属性(如物质力量)决定了科学的发展,
- the properties of available technologies determine the appearance of heuristic tools in scientific inquiry,
现有技术的特性决定了启发式工具在科学探索中的出现。

2) According to ecological analysis in STS:

在 STS 中, 根据生态学分析:

- current ecological emergencies should be addressed from the perspective of relational materialism,
应从关系唯物主义的角度来解决当前的生态紧急状况,
- one of the tasks of the STS scholar is to point out the types of associations between human and nonhuman entities that, from an ANT perspective, economize the impact that technological artifacts have on the environment,
STS学者的任务之一是指出人类和非人类实体之间的关联类型, 从ANT的角度来看, 这些关联可以节约技术人工制品对环境的影响,
- scientists and engineers are called upon to coordinate their efforts to increase their social utility in a sustainable way,
科学家和工程师被要求协调他们的努力, 以增加他们的社会效用 以一种可持续的方式,
- the success or failure of a certain idea or artifact depends on the complex niche (e.g., natural, social, economic) in which it was conceived,
某种思想或人工制品的成败取决于它所处的复杂环境(如自然、社会、经济), 它是在这种情况下构思的。

3) Actor-network theory (ANT) should be considered primarily as:

行为者-网络理论 (ANT) 应主要被视为:

- an empiricist “toolkit”,
经验主义的“工具箱”,
- an example of positivistic sociology,
实证主义社会学的一个例子,
- an example of realism in sociology,
社会学中现实主义的一个例子,
- a materialistic “toolkit”,
唯物主义“工具箱”。



4) ANT actors are heterogeneous in that they include human and nonhuman entities...

ANT行动者是异质的，因为他们包括人类和非人类的实体...

- who do not directly participate in the social construction of scientific knowledge,
他们不直接参与科学知识的社会构建，
- with no methodological distinctions between them,
它们之间没有方法上的区别，
- whom the theory clearly distinguishes in terms of intentionality,
该理论在意图性方面有明确的区分，
- whom the theory clearly distinguishes in terms of agency,
该理论在行动者方面有明确的区分。

5) Blackboxing is:

黑箱是：

- the process by which the inner workings of a particular scientific or technical work are obscured because of its success,
一项科学或技术工作的内部运作因其成功而被掩盖的过程，
- the process by which a particular scientific or technical work is rejected because unsuccessful,
一个过程，通过这个过程，一个特定的科学或技术工作因不成功而被拒绝，
- the way to mark network nodes that are not operational (i.e., network nodes that are not in action),
用于标记不在运行中的网络节点（即不在行动中的网络节点）的方法，
- the way by which a certain human or non-human actor assumes the role of actant,
人类或非人类行动者承担 actant 角色的过程。

6) What is meant by the expression situated knowledges?

局境知识 (situated knowledges) 这一表述的含义是什么？



7) When we talk of indexical reasoning in STS, we refer to:

当我们在 STS 中谈论索引推理 (indexical reasoning) 时, 我们是指:

- the algorithmic nature of laboratory practices,
实验室实践的算法性质,
- tacit knowledge behind scientific action,
科学行动背后的隐性知识,
- the complex laboratory practices that Karin Knorr Cetina calls “tinkering”
and Bruno Latour calls “bricolage”,
那些被 Karin Knorr Cetina 称为 "修补" 和 Bruno Latour 称为 "修葺" 的复杂实验室实践,
- to the situational contingency and contextual location of scientific action,
科学行动的情境偶然性和背景情境性。

8) In the natural sciences:

在自然科学中:

- there is no room for metaphors because metaphors are always fundamentally self-referential,
没有隐喻的空间, 因为它们总是从根本上自我指涉的,
- it is preferable to use analogies rather than metaphors,
最好是使用类比而不是隐喻,
- metaphor can be seen as a heuristic tool for referential and descriptive purposes,
隐喻可以被看作是一种启发式的工具, 用于指代和描述的目的,
- metaphors and analogies are conceptual tools useful only for practicing rhetoric.
隐喻和类比是只对实践修辞有用的概念性工具。

9) Which of the following statements is *not true*?

以下哪种说法是不正确的?

- ANT is a social theory focused on technoscience,
ANT 是一种专注于技术科学 (technoscience) 的社会理论,
- ANT may encourage particular attention to “heroic” scientists and engineers,
ANT 可能鼓励关注 "英雄" 的科学家和工程师,
- In the ANT perspective, science and technology work by translating material actions
from one form to another,
在 ANT 观点中, 科学和技术必须通过将物质行为和力量从一种形式转化为另一种形式来发挥作用,
- ANT avoids addressing the idea of scientific and technological progress,
ANT 避免讨论科学和技术进步的想法。



10) Tacit knowledge is:

默会知识是:

- hidden algorithmic knowledge (regarded as implicit or redundant),
隐藏的算法知识（被认为是隐含的或多余的），
- knowledge that cannot be fully formalized and is irreducibly based on socialization processes,
不能完全正规化的知识，只能通过社会化过程交流，
- algorithmic knowledge that does not lead to any concrete results, but nevertheless serves
to establish social relations,
不导致任何具体结果的算法知识，但仍可用于建立社会关系，
- a concept related to question of agency attributable to nonhuman actors (e.g., a computer),
一个与归属于非人类行为者（如计算机）的代理权的阙如有关的概念。

11) Is technology applied science?

我们可以把技术看作是科学的应用吗？



12) Imagine building a gravitational wave detector and detecting a gravitational wave. To know whether the detection is correct, we need to be sure that we have built a good gravitational wave detector. But we will not know if we have built a good detector until we test it and get the right results. But we will not know if the result is correct until we build a good gravitational wave detector... and so we enter a logical loop that in the field of STS and in the philosophy of science is traditionally known as:

想象一下，建造一个引力波探测器，并探测到一个引力波。为了知道探测是否正确，我们需要确定我们已经建造了一个好的引力波探测器。但是在测试它并得到正确的结果之前，我们不会知道我们是否建造了一个好的探测器。但在我们建立一个好的引力波探测器之前，我们不会知道结果是否正确... 因此，我们进入了一个逻辑循环，在 STS 领域和科学哲学中，传统上被称为：

- an ouroboros,
衔尾蛇，
- self-referential ontology,
本体论的自我指涉，
- experimenter's regress,
实验者的倒退，
- inferential quandary,
推论的窘境。

13) Regarding Bruno Latour's *The Pasteurization of France* (1988), one of the most obvious observations we might make if we embrace ANT is that:

相对于布鲁诺-拉图尔的《巴斯德的战争实验室》（1988年）一书，如果我们接受 ANT，我们可能做出的最明显的观察是：

- the microbe was for Louis Pasteur a quasi-human entity,
对路易斯-巴斯德来说，微生物是一个准人类的实体，
- the microbe is not endowed with any intentionality,
微生物没有被赋予任何意图性，
- Pasteur succeeded in turning the idea of microbiology laboratory into a black box,
巴斯德成功地将微生物学实验室的概念变成了一个黑盒子，
- Pasteur was able to build an alliance with the microbes,
巴斯德能够与微生物建立一个联盟。



14) Is there anything about ANT that puzzles you?

ANT 有什么让你困惑的地方吗?

15) Thomas Nagel argued that *absolute objectivity*:

湯瑪斯·內格爾认为，绝对的客观性：

- can be localized at the micro-social level,
可以在微观社会层面上被本地化，
- is achievable, but it is always socially constructed,
是可以实现的，但它总是由社会构建的，
- is, ideally, “the view from nowhere”,
理想情况下，是“处处皆准之见”，
- breaks away from common sense and must be based on an algorithmic type of knowledge,
是脱离常识的，必须以算法知识为基础。



16) A likely problem specifically related to the writing of scientific articles with high externality is:

一个可能的问题具体涉及到具有高外在性的科学文章的写作:

- conflict of interests,
实质,
- insufficiency of sources,
来源不充分,
- overgeneralization,
过度泛化,
- insufficiency of funds,
资金不足。

BONUS QUESTIONS (*choose two*)

B1) What is *agential realism*?

什么是行动主义现实主义 (*agential realism*) ?



B2) What would you do to approach (and try to solve) the logical problem related to gravitational waves outlined above?¹

你将如何处理（并尝试解决）上述与引力波有关的逻辑问题？

B3) Is there room for rhetoric in science writing? Are there risks or dangers associated with it?

科学写作中是否有修辞的空间？是否存在风险或危险？

¹ As a homework assignment read carefully Harry M. Collins, *Changing Order: Replication and Induction in Scientific Practice* (London: Sage Publications, 1985), especially pp. 79–111.



B4) Briefly explain the meaning and your opinions on the social construction of technology (SCOT).

简要说明技术的社会建构（SCOT）的含义以及你对它的看法。