一种可能缓解内卷问题的构思

The original manuscript is in Chinese, and the English translation is attached to this pdf.

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一、摘要与前言：

远古时期的人类之所以能成为食物链顶端，很大一部分的原因是携手合作应对自然界的天敌，共同向自然界索取食物和资源。而现在的人类好像已经没有天敌了，所以携手合作的动力不足，变成了大多数情况下人与人之间相互争夺资源。

即使资源足够满足所有人的存活，人类也有比别人更好的自我实现需求，人与人排位竞争不可避免。当一场人类间的排位竞争变得毫无意义，只是为了比出排名时，内卷就发生了。

既然排位赛无法避免，为什么不能创新比赛机制呢？或者说，再竖一个共同的天敌（对理工农医的未知）。比谁对自然科学的研究贡献大。无论是投钱、出力、还是动脑，只要突破了现有知识的边界，就可以获得排位赛的胜利，获得自我实现、名望和超额利润。胜利结果必然开源讨论、质疑和推翻，再推翻，再质疑，再发现，再讨论.....

你可能会觉得自然科学前沿问题只有少部分优秀科学家能够指引方向，但我认为语言（除了传统意义上的语言，还包括各个学科的知识体系和其教育体系及筛选机制）的臃肿限制了知识的传播。教育资源不足客观上造成了获得高等教育的学生（新灵感）很少，而呆板的筛选机制只是检验对过去知识的掌握程度。

教育和筛选体系使现在不是接力建造高塔，而是比哪个人建的高塔更高。

一个极端的脑洞，如果一年级学生的第一节课是如何使用计算器、GPT 等智能设备，初中教授微积分在计算机上的应用，高考时允许使用计算机（事实上，上海高考允许使用计算器）、互联网、大语言模型帮助作答。会不会开辟一个新的世界？

自然科学对人类的考试不存在作弊，或者说，考的就是作弊手段。当更多人“狼狈为奸”时，对真理的探求，就会更近一步。

二、结论：

结论一：HDR 摄制技术是让人类认识【自身感受器局限性】和【观测工具局限性】的绝佳例子。（对此内容的详细解释在另一文件中）

结论二：【人体原生感受器】、【记录工具】、【显示工具】、【狭义语言】的局限性，是制约人类进步的最大障碍。大量信息在记录（模数转换）时被丢失，显示工具（数模转换）也不能完全显示出已被记录下来的信息。而人类智慧大部分只能映射（模数转换）在狭义语言上，狭义语言的特点和局限性使人类表达自身想象和灵感的道路异常艰难。

结论三：狭义语言看似内部自洽实则漏洞百出，必须用新定义、新符号、新词汇、新语法、新语种（数学语种、化学语种等）来解释新的未知，而随着新定义、新符号、新词汇、新语法、新语种的诞生，“未知”更是在急速膨胀，学习狭义语言成为了每个人类从出生开始的巨大负担。

结论四：狭义语言是由人类原生感受器进行底层定义的，而自然世界的规律与人类原生感受器并不相关。狭义语言与自然世界的规律事实上毫无相关性，只能尝试让“狭义语言膨胀”的速度快过“未知膨胀”的速度，但这不可能。狭义语言未来在科研中的作用应是启发灵感，而非苛求准确描述和定义。“超隐喻”【pataphor】是改善狭义语言局限性的一种方式。

结论五：教育资源大量被浪费在对狭义语言的释义和考核对狭义语言掌握的程度中，随着“狭义语言加速膨胀”，使优质教育资源永远不足。

结论六：人类学习的精力是极其有限的，随着狭义语言的加速膨胀，全才通才越来越少，科研人员取得成果的时间越来越接近人类寿命。人类只能选择深耕细分领域。失去了很多触类旁通的可能。

结论七：教育资源的不足使得筛选学生成为必然，而筛选标准是对狭义语言的掌握程度。这对于理论的应用有很大意义，但这一筛选标准能否特异性筛出“有高价值灵感的人”有待讨论。无论如何可以肯定的是，这种筛选标准客观上让接受高等教育的“灵感的总量”大幅减少。

三、新定义和科幻：

狭义语言：部分可见光波长的不规则曲线和声波经过规则（如汉文汉语规则、英文英语规则、数学规则）排列组合后的结果。

类狭义语言：可转换为数字信号并进行储存、分发的图形、图像、视频、音频。

“广义语言”：“我们”从（视细胞、耳蜗、人工耳蜗、外周感受器）等一切神经出现的信号经过器官解析后结果的全集，并非神经信号本身。

个体感受到的“广义语言”若想进行传输和记录，载体只能是狭义语言和类狭义语言，即狭义语言和类狭义语言承载了人类的全部智慧。这三者相互映射、反映射的过程就是人类的思维、创作、接纳过程。映射、反映射的能力就是人的思维能力。
但这些能力与理想中的突破性人才的关系似乎没有得到印证。在我看来，除了狭义语言晦涩臃肿之外，最大的原因是狭义语言的根基是由人类原生感受器奠定。而人类原生感受器与“真实世界”之间相隔多重映射，产生了无法弥补的失真，这造成了狭义语言的根基不完备。其晦涩臃肿的原因，正是在不完备的根基上搭建高楼所不断出现的“新发现、新定义、新语种、新符号、新语法、新词汇”（我并不想继续生造狭义语言框架下的新东西，而是想罗列这些新东西来说明用狭义语言精确概括世界的努力是徒劳的），这些“新东西”诞生后一定会带来新的未知，“狭义语言膨胀”的速度永远也追不上“未知膨胀”的速度。

四、关于狭义语言根基不稳的扩展阅读：

人存在手臂。人为地举起手臂，手臂举起到由“广义语言”定义的“理想位置”的全过程中，身体中视网膜、手臂肌肉等大量感受器出现的神经信号经大脑解析后的结果（“广义语言”）就是你所感受到手臂的“实

际位置”。但“理想位置”无法由狭义语言符号排列组合定义，这是“广义语言”范畴。如果尝试狭义语言解释“存在”、“手臂”、“位置”、“举起”的含义，只能在狭义语言内部原地兜圈且无法自洽（无数悖论的出现）。脑中回忆你曾经看到过的一朵花（包括它的质量、香味、颜色、轮廓、辐射出去的热量等），你能通过狭义语言描述出来吗？在你描述的过程中，这朵花还是这朵花吗？

五、类狭义语言：

类狭义语言的局限性：
对于与人类原生感受器观测范围不匹配的观测器材，人为用狭义语言选择了观测范围（对 HDR 摄制技术讨论的另一文件中的第一板块第六、第七映射）。观看观测结果时需要用狭义语言（拍摄性质、位置、时间、角度、波长范围等）解释观测范围，否则观测结果不可读。

类狭义语言的特殊性：
类狭义语言与“真实世界”有一定相关性，而狭义语言没有。

六、类狭义语言与狭义语言的相互映射：

通过类狭义语言（观测后的实验结果）得出的狭义语言结论在事实上与类狭义语言毫无相关性。这会陷于“语境”的泥沼，尝试用复杂的“语境”来限定狭义语言结论的适用范围。如果用“为什么”进行无限套娃，到最后真正的“原发性问题”全是未知。

七、数学语言

即使是数学语言（狭义语言的一种），目前也无法计算出蔡廷常数等超越数的无穷级数函数。能被持续计算的超越数只是极少部分的极少部分。

数学语言的基础来自于古人对自身原生传感器的认识，就如同选择 10 进制而不是 e 进制一样。数学语言与其他狭义语言并无显著不同。

八、全文主旨及建议和对策

本视频的主旨是引导人类工作生活重心从人类间的零和博弈（内卷）转向对自然科学的研究。

即从别人手里抢果实变成向自然科学要答案。

如果对自然（包括生命科学）的未知是人类的最大威胁，那么就应像少儿编程一样，简化科学教育，摒弃冗杂的狭义语言体系，把教育重心从验证过去知识的掌握水平（可被设备取代的计算技巧等）转化为对前沿问题的拷问。把最前沿问题的研究关口前置到一般研究生甚至本科生（互联网和大语言模型的出现使这一难度大大降低）。这会让灵感（“广义语言”）的基数大幅增加。

在过渡阶段，受当前实验室资源的限制，应继续保持合理的学术壁垒。实验资源所有者是这一资源合理分配的“评估者”，评估用有限的资源更应该验证哪些灵感。

在科学教育进一步下沉，研究关口进一步下沉，过渡阶段结束后，涌现出的更多好奇心和逐利心态使商业性前沿实验室成为可能。商业实验室承接来自低层次学者或私企及大众的实验订单。资本的涌入使商业性实验室和实验器材市场扩张，规模效应使实验器材如消费电子产品一样加速迭代，让目前没有商业前景的实验室摆脱研究基金的束缚。最终引导人类工作生活重心从人类间的零和博弈（内卷）转向对自然科学的研究。即从别人手里抢果实变成向自然科学要答案。

若能利用好人类的猎奇心、好奇心和逐利心态，把自我实现、名望和超额利润作为挂在个人目标前的果实，这种新商业模式实现的可能性很高。

九、相信他人的智慧

受本文作者能力所限，尚未构思出完全合理公平的科研成果评价机制与教育体制改革方案。我认为没有完美的构思，一定有更专业的人士可以在本文的基础上构思出可能的应用方案。

本文想做的，只是启发这一构思的可能性。而当一个构思利大于弊，且得到广泛传播认同后，会有巨大的内生动力推动这一构思的成型。

A possible hypothesis to alleviate neijuan(内卷)

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1.Abstract and preface:

In ancient times, humans were able to ascend to the top of the food chain largely due to cooperation in facing natural enemies and collectively extracting food and resources from nature. However, in the present day, it seems that humans no longer have natural adversaries. Consequently, the drive for cooperation has diminished, leading to more frequent competitions among people for resources.

Even if resources are sufficient to meet everyone's basic survival needs, humans still have individual desires for self-fulfillment that surpass mere existence. Competition for status among people is inevitable. However, when this competition becomes meaningless, driven solely by the desire to outperform others, it leads to a phenomenon known as '内卷' (neijuan).

Since ranked matches are unavoidable, why not innovate the competition mechanism? Or, to put it another way, let's introduce a common adversary (the unknown in science, engineering, agriculture, and medicine). Let's compete based on contributions to natural sciences. Whether it's investing money, putting in effort, or using our intellect, as long as we break through the boundaries of existing knowledge, we can achieve victory in ranked matches, gaining self-fulfillment, prestige, and substantial profits. Victory will inevitably lead to open discussions, questioning, overturning, rediscovery, and further discussions...

You might think that only a few exceptional scientists can guide the way in cutting-edge natural science questions. However, I believe that language (beyond its traditional meaning, including the knowledge systems and educational structures of various disciplines) hinders the dissemination of knowledge. The scarcity of educational resources objectively results in very few students (the bearers of new inspiration) gaining access to higher education. The rigid selection mechanisms merely assess mastery of existing knowledge.

The education and selection systems have transformed the current situation from merely constructing towers to competing to build taller towers than others.

An extreme imagination: What if a first-grade student's first lesson involved learning how to use calculators, GPT, and other intelligent devices? Then, in middle school, they were taught calculus applications on computers. And during college entrance exams (such as the 高考 in Shanghai, where calculators are already allowed), students could freely use computers, the internet, and large language models to assist with their answers. Could this open up a whole new world?

In the examinations of natural sciences, cheating doesn't exist; in fact, the very act of testing is a means of detecting cheating. However, when more people collude in deception, the pursuit of truth takes a step closer.

2.Conclusions:

Conclusion 1: HDR filming technology serves as an excellent example for humans to understand the limitations of their own sensory perception and the limitations of observation tools. (A detailed explanation of this content is provided in another document.)

Conclusion 2: The limitations of innate human sensory perception, recording tools, display tools, and narrow-sense language constitute the greatest obstacles to human progress. A significant amount of information is lost during recording (analog-to-digital conversion), and display tools (digital-to-analog conversion) cannot fully reveal the information that has been recorded. Moreover, most of human wisdom can only be mapped (analog-to-digital conversion) onto narrow-sense language. The characteristics and limitations of narrow-sense language make it exceptionally challenging for humans to express their imagination and inspiration.

Conclusion 3: Narrow-sense language appears internally consistent but is riddled with flaws. It necessitates new definitions, symbols, vocabulary, grammar, and even new linguistic domains (such as mathematical or chemical languages) to explain novel concepts. As new definitions, symbols, words, grammar rules, and linguistic domains emerge, the realm of the ‘unknown’ expands rapidly. Learning narrow-sense language becomes a significant burden for every human from birth.

Conclusion 4: Narrow-sense language is fundamentally defined by human innate sensory perception, yet the laws of the natural world are not inherently related to human sensory perception. In fact, narrow-sense language has no direct correlation with the natural world’s rules. We can only attempt to accelerate the expansion of narrow-sense language faster than the expansion of the ‘unknown,’ but this is an impossible task. The future role of narrow-sense language in scientific research should be to inspire inspiration rather than rigidly demand precise descriptions and definitions.

Conclusion 5: Education resources are extensively squandered on interpreting and assessing mastery of narrow-sense language. As ‘narrow-sense language inflation’ accelerates, high-quality educational resources perpetually remain insufficient.

Conclusion 6: Human learning capacity is extremely limited. As narrow-sense language undergoes accelerated inflation, polymaths and generalists become increasingly scarce. The time for researchers to achieve results approaches human lifespans. Humans are left with no choice but to specialize in narrow-sense fields, losing the possibility of broad interdisciplinary understanding.

Conclusion 7: The scarcity of educational resources makes student selection inevitable, and the criterion for selection is mastery of narrow-sense language. While this has significant implications for theoretical applications, whether this filtering criterion can specifically identify ‘individuals with high-value inspiration’ remains a topic for discussion. Nevertheless, it is certain that this filtering standard objectively significantly reduces the overall ‘inspiration quotient’ among those who receive higher education.

3.New Definition:

“Narrow-sense language” refers to the organized combination of irregular curves in the visible light spectrum and sound waves, following specific rules (such as those found in Chinese, English, or mathematical language rules)

“Quasi-Narrow-sense language” refers to graphics, images, videos, and audio that can be converted into digital signals for storage and distribution.

“Broad-sense language” refers to the entirety of results analyzed by organs from signals that appear in all nerves, such as photoreceptor cells, cochlea, cochlear implants, peripheral receptors, etc. It is not the nerve signals themselves.

The “broad-sense language” perceived by an individual, if it wants to be transmitted and recorded, can only be carried by narrow-sense language and quasi-narrow-sense language, that is, narrow-sense language and quasi-narrow-sense language carry all human wisdom. The process of mutual mapping and inverse mapping of these three is the process of human thinking, creation, and acceptance. The ability to map and inverse map is the thinking ability of humans. However, these abilities seem to have not been confirmed in relation to the breakthrough talents in the ideal. In my opinion, apart from the obscurity and bloatedness of narrow-sense language, the biggest reason is that the foundation of narrow-sense language is laid by human native receptors. And the human native receptors are separated from the “real world” by multiple mappings, resulting in irreparable distortion, which makes the foundation of narrow-sense language incomplete. The reason for its obscurity and bloatedness is precisely the “new discoveries, new definitions, new languages, new symbols, new grammars, new vocabularies” that keep appearing when building high-rises on an incomplete foundation. These “new things” will definitely bring new unknowns after they are born, and the speed of “narrow-sense language expansion” will never catch up with the speed of “unknown expansion”.

4.Extended reading on the unstable foundation of narrow-sense language:

Humans have arms. When a person deliberately raises their arm, the entire process of the arm being raised to the “ideal position” defined by “broad-sense language”, the result of the analysis of the brain after the nerve signals appearing in a large number of receptors in the body such as the retina, arm muscles, etc. (“broad-sense language”) is the “actual position” of the arm you feel. But the “ideal position” cannot be defined by the combination of narrow-sense language symbols, this is the category of “broad-sense language”. If you try to explain the meaning of “existence”, “arm”, “position”, “raise” in narrow-sense language, you can only go around in circles within narrow-sense language and it is inconsistent (the appearance of countless paradoxes). Can you describe a flower you have seen in your mind (including its mass, scent, color, contour, radiated heat, etc.) through narrow-sense language? In the process of your description, is the flower still that flower?

5.Quasi-Narrow-Sense Language:

Limitations of Quasi-Narrow-Sense Language:
For observational equipment that does not match the range of human native sensors, humans have chosen the observational range with narrow-sense language (the sixth and seventh mappings in the first section of another document discussing HDR filming technology). When viewing the observation results, it is necessary to use narrow-sense language (shooting nature, location, time, angle, wavelength range, etc.) to explain the observation range, otherwise the observation results are unreadable.
The Specificity of Quasi-Narrow-Sense Language:
Quasi-Narrow-sense language has a certain relevance to the “real world”, while narrow-sense language does not.

6.Mutual mapping between quasi-narrow-sense language and narrow-sense language:

The conclusions of narrow-sense language derived from quasi-narrow-sense language (experimental results after observation) are in fact irrelevant to quasi-narrow-sense language. This will fall into the quagmire of “context”, trying to use complex “context” to limit the scope of application of narrow-sense language conclusions. If you use “why” for infinite nesting, in the end, the real “primary problems” are all unknown.

7.The main points, suggestions, and countermeasures of the entire text:

The main purpose of this article is to guide the focus of human work and life from zero-sum game among humans (内卷) to the study of natural sciences.That is, it changes from grabbing fruits from others to asking for answers from natural sciences.

If the unknowns of nature (such as science, engineering, agriculture, and medicine) are the greatest threats to humanity, then we should simplify scientific education like children’s programming, discard the cumbersome narrow-sense language system, and shift the focus of education from verifying the mastery level of past knowledge (computational skills that can be replaced by devices, etc.) to questioning frontier issues. The research focus of the most cutting-edge issues should be advanced to general graduate students or even undergraduates (the emergence of the Internet and large language models greatly reduces this difficulty). This will significantly increase the base of inspiration (“Broad-sense language”).

During the transition phase, due to the limitations of current laboratory resources, reasonable academic barriers should be maintained. The owners of experimental resources are the “evaluators” for the rational allocation of these resources, assessing which inspirations should be verified with limited resources.

As scientific education further sinks, and the research focus further sinks, after the transition phase ends, the emergence of more curiosity and profit-seeking mentality makes commercial frontier laboratories possible. Commercial laboratories undertake experimental orders from lower-level scholars or private enterprises and the public. The influx of capital expands the commercial laboratory and experimental equipment market, and the scale effect accelerates the iteration of experimental equipment like consumer electronics, freeing laboratories without commercial prospects from the constraints of research funds. Ultimately, it guides the focus of human work and life from a zero-sum game among humans (内卷) to the study of natural sciences. That is, it changes from grabbing fruits from others to asking for answers from natural sciences.

If we can make good use of human curiosity, inquisitiveness, and profit-seeking mentality, and regard self-realization, fame, and excess profits as fruits hanging in front of personal goals, the possibility of realizing this new business model is very high.