The Four “Novelty Moves[[1]](#footnote-1)”

1. *Establish the Significance*

Explain why someone should care about this issue or topic. Establish common values, concerns, or stakes. The audience for this statement can be broader than the target audience of your paper (the general public, if possible). In humanities research, the significance may just be the currency of the issue: the fact that people are talking about it.

1. *Describe the “Status Quo”*

Describe the ways of thinking or practices that are currently in circulation that address the issue, but that are limited due to lack of knowledge, understanding, or innovative solutions. The status quo may address an overt problem or may address limiting assumptions (or both).

1. *Identify a “Gap”*

Show that the current practices (i.e. “status quo”) are limited, incomplete, or otherwise unsatisfactory. A common way to signal the gap is the word “however.”

1. *Fill that Gap*

Show how your current research or research proposal is a timely, necessary,

or innovative solution to effectively filling the existing gap.

If you’re not sure how your research is “filling a gap,” it could be novel in one

or more of these ways:

* + - * **A new theory or hypothesis:** explain a shortcoming in the existing theory

to set up a new hypothesis

* + - * **New solution:** propose a solution to an existing problem or unresolved

controversy; you must explain the problem and why your solution is better

than other solutions

* + - * **New methodology:** critique methodology of previous studies and suggest

improved methodology

* + - * **New domain**: investigate a previously unstudied population, site, material,

or other phenomenon

**Example 1**

A. The long-term goal of this project is to analyze neural signals collected from human brain and use these signals to build a brain computer interface (BCI). BCI aims to provide a direct control pathway from brain to external devices such as a computer. It is a radically new communication option for those with neuromuscular impairments that prevent them from using conventional augmentative communication methods. In this project, I will develop an application programming interface (API) to extract electroencephalography (EEG) signals collected by a commercial headset.

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| **A** | **Thus, to increase the sparkles available for unicorn consumption, this paper presents a model for developing hydroponic sparkle gardens from which sparkles can be harvested and used to maintain the flying capabilities of the unicorns we’ve come to rely on.** |
| **B** | **Researchers have recently discovered that this flying ability depends on unicorns’ access to sparkles, which are a naturally occurring within enchanted forests.** |
| **C** | **Unicorns’ ability to fly provides humans with the previously unknown joy of visiting mountaintops, cloudscapes, and the ends of rainbows.** |
| **D** | **However, because enchanted forests (and consequently sparkles) are becoming scarce due to changes in the global climate, unicorns are in increasingly in danger of losing their ability to fly.** |

B. Neural disorders can disrupt the brain’s neuromuscular channels making communication impossible for those affected. One radically new communication option for those with neuromuscular impairments is the brain computer interface (BCI). BCI aims to provide a direct control pathway from electroencephalography (EEG) signals in the brain to external devices such as a computer. Currently no programming tools exist to aid researchers in encoding and interpreting commands embedded in EEG signals. Thus, the goal of this project is to develop an application programming interface (API) for translating EEG signals into specific commands that can assist researchers in developing BCIs.

**Example 2\***

What does it mean, and what does it take, to keep a work identity alive? Scholars have investigated identity work in organizational contexts characterized by strong cultures, tight communities, and strict display rules, showing how people strive to fit into demanding roles without losing their individuality. Economic volatility and technological change, however, have led more people to work outside such strong contexts as independent workers loosely connected to organizations or selling directly to the market. For these workers, the availability of institutionalized frameworks to orient their identity work is, at best, elusive. Thus, we conducted a qualitative study of independent workers who were facing chronic uncertainty about the stability and meaning of their work identities.

\*(Adapted from: Petriglieri, G., Ashford, S. J., & Wrzesniewski, A. (2019). Agony and Ecstasy in the Gig Economy: Cultivating Holding Environments for Precarious and Personalized Work Identities. Administrative Science Quarterly, 64(1), 124–170.

|  |  |
| --- | --- |
| **A** | **How organisms learn the value of single stimuli through experience is well described. In many decisions, however, value estimates are computed “on the fly” by combining multiple stimulus attributes.** |
| **B** | **Here we explore a common scenario in which decision-makers must combine information about quality and quantity to determine the best option.** |
| **C** | **Many choices we make each day require us to weigh up the quality and quantity of different outcomes.** |
| **D** | **The neural basis of this computation is poorly understood.**  (Adapted from: Berker A.O, et al. Computing Value from Quality and Quantity in Human Decision-Making. *Journal of Neuroscience* 2 January 2019, 39 (1) 163-176). |

**Example 2\***

Although plastic has revolutionized modern life, traditional petroleum plastics have a staggering impact on the environmental. Bioplastics, an alternative to petroleum plastics, may be a more sustainable option because they use fewer fossil fuels in production and reduce greenhouse gas emissions as they biodegrade. One particularly promising bioplastic is polylactic acid (PLA), which resembles traditional plastic and can be processed on equipment already used for petroleum plastics. However, the commercial viability of PLA is currently limited because it can only be composted in industrial facilities and cannot be mixed with other recyclable materials [1, 2]. To make PLA more commercially viable, we develop a device that composts PLA and other bioplastics within a home composting environment [3]. Such a device, we argue, encourages the production of more sustainable and economic bioplastics.

(Example adapted from: https://www.cmu.edu/gcc/handouts-and-resources/novelty-moves-handout.pdf)

**Example 3\***

Major depressive disorder (MDD) is a common and debilitating condition that contributes significantly to global disease burden. Anhedonia is a core symptom of depression, but the underlying neurobiological mechanisms are unknown. Correlative neuroimaging studies implicate dysfunction within ventromedial prefrontal cortex, but the causal roles of specific subregions remain unidentified. We addressed these issues by combining intracerebral microinfusions with cardiovascular and behavioral monitoring in marmoset monkeys to show that over-activation of primate subgenual anterior cingulate cortex (sgACC, area 25) blunts appetitive anticipatory, but not consummatory, arousal, whereas manipulations of adjacent perigenual ACC (pgACC, area 32) have no effect.

(\*Example adapted from: Alexander et al., “Fractionating Blunted Reward Processing Characteristic of Anhedonia by Over-Activating Primate Subgenual Anterior Cingulate Cortex,” 2019, Neuron 101, 307–320)

**Example 4**

The literature on undergraduate women in engineering is rife with situations in which women face major problems in team projects and other interactions outside of class but have no good strategies for resolving these problems. This project is based upon the theory that women who have been successful in engineering schools and workplaces have developed tacit knowledge (assumptions, habits, and strategies that individuals know but usually cannot articulate explicitly) about how to interact successfully in this environment. The goal of this project is to tap into this tacit knowledge and bring it to the surface where it can serve as a resource for young women and girls just entering engineering and similar male-dominated fields.

**Example 5\***

Theories of public policy change, despite their differences, converge on one point of strong agreement: the relationship between policy and its causes can and does change over time. This consensus yields numerous empirical implications, but our standard analytical tools are inadequate for testing them. As a result, the dynamic and transformative relationships predicted by policy theories have been left largely unexplored in time series analysis of public policy. This article introduces dynamic linear modelling (DLM) as a useful statistical tool for exploring time-varying relationships in public policy.

(\*Adapted from: LOFTIS, M. W. and P.B. Mortensen, “A dynamic linear modelling approach to public policy change” Journal of Public Policy (2018), 38:4, 553–579).

**Example 6\***

Laws restricting the behaviors of homeless people in public places are proliferating. Proponents argue that such “quality of life” laws will encourage homeless people to move off the streets and into services, and thereby improve their quality of life. Critics argue that these laws target vulnerable individuals and show little evidence of improving the lives of homeless people. To inform this debate, this article reports data from two separate surveys of Colorado homeless residents regarding their experiences with quality of life policing, supplemented by a review of police data regarding contacts, ticketing, and arrests of homeless people

(\*Adapted from:Robinson, T. (2019). No Right to Rest: Police Enforcement Patterns and Quality of Life Consequences of the Criminalization of Homelessness. Urban Affairs Review, 55(1), 41–73).)

**Example 7\***

Research on the British colonial state has been thriving and scholars have been assiduous in suggesting theories of its nature and its relationship to the legal and political structures of Western imperial modernity.2 However, historians have generally have limited their inquiries to the “fiscal-military state,” as John Brewer famously dubbed it. Scholars generally agree that this imperial state helped forge some of the unique capacities of modern statehood and contributed to British domination in the eighteenth-century war for trade and empire. What remains striking is that the cultural intimations and practices of state-building, tend to escape sustained attention. This project helps revivify a cultural perspective on the arts and strategies of colonial state-making in the eighteenth century by examining the practices of governance in three frontiers of the British empire—Fort Marlborough (Sumatra), St. Helena, and Jamaica.

(\*Example adapted from: https://www.cmu.edu/gcc/handouts-and-resources/novelty-moves-handout.pdf)

1. Adapted from the Global Communication Center at Carnegie Mellon University: https://www.cmu.edu/gcc/handouts-and-resources/novelty-moves-handout.pdf [↑](#footnote-ref-1)