The Brilliance of the Living World

A Templeton World Charity Foundation Challenge

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Goal

The living world is alight with bright sparks of intelligence. They form a brilliant constellation of differences and capacities that remain largely unexplored. Our challenge is to expand outward from human experience to find other ways of knowing, experiencing, and flourishing that will inform and enliven our own.

Opportunity

Flourishing depends on much more than I.Q. Emotional, social, and intuitive intelligences, for example, play central roles in individual development and cultural wellbeing. Capacities like these exist in different forms throughout the non-human living world and we have the opportunity to support an exploration of the richness and dynamism they create.

Living beings *know* their world. And recent scientific breakthroughs have begun to shine a light on the many forms that knowing takes – the intelligences of the living world. Scholarship in related areas is currently spread among several disparate communities, many of which have limited funding opportunities. The TWCF is uniquely positioned to amplify the best research in this area, expand the range of inquiry, and engage researchers across academic disciplines and fields of study.

Anyone who lives or works around animals knows that they have rich social lives. But the exact nature of these social capacities remains largely unexplored. We know, for example, that animals form attachments and rely upon one another but are these 'friendships' as we understand them? Is there mutual love, trust, respect, or devotion? How do they reconcile after conflict and avoid lasting damage to their communities? Do other creatures have and appreciate expertise? Do they build durable cultures that can be passed along even though most animals seem to lack language? Tantalizing clues have emerged that many animals do empathize, they grieve, they seem to have joy. Our challenge is, first, to clarify the terms we use for social intelligences, and then to explore different ways of being in non-human species' groups and communities.

From squirrels to sparrows, the animals we see every day make plans. They dig up our flower beds to hide nuts and pluck grasses to build nests. Some are smarter than others. Squirrels, for example, are

terrible at remembering where they buried their acorns, making them a boon for reforestation. On the other hand, some birds have exceptional recall, knowing exactly where each of their stashes has been placed. Recollection, planning, and anticipation are generally considered to be crucial parts of a fruitful human life in a complex world – it takes a kind of 'mental time travel' (or episodic memory) to project one's self into alternate situations and possible futures so that we might thrive when change inevitably comes. When we pretend and when we play, some of our effort is quietly going into building out a set of possible futures. And it takes a certain sense of self, a knowledge of one's own capacities, roles, and flexibility to know what plans to lay. *Perhaps the same is true for non-humans*. Our challenge is to find out how our fellow inhabitants of Earth experience their world beyond the immediate present and perhaps learn more about the ways in which we too perceive and sometimes misperceive the possibilities that emerge around us.

Human minds work on particular scales. We mostly think about things that we can see or hear and, as a result, we don't tend to focus across great distances. Similarly, our attention spans are short so we're generally aware of events that transpire in minutes and hours. While we plan for days and years ahead, we're less and less attuned to longer epochs. On the other hand, our logic and language play out over seconds and minutes and our physiology is relatively slow (our eyes can't track the beating of a hummingbird's wings, much less the delicate dance of a bee colony). So we often ignore the minute and fast-paced. These natural limits play a powerful role in our choices about what to study. We might be ignoring some rich and plentiful forms of knowing that either happen too quickly or too slowly, are too small or too large, too concentrated or too diffuse, to seem sensible to human eyes. Some forms of life, like plants, bacteria, fungi, etc. function in such radically different ways on such dramatically different scales that we might simply have overlooked their distinct sorts of intelligences. Our challenge is to expand beyond the human time and size scales and look for intelligences that might have simply gone unnoticed because of our own limitations.

Many of us love animals and some believe they love us back. But we know very little about the inner lives of the creatures around us. Because other animals don't have the language to tell us how they feel, humans infer and project in ways that reflect our own thoughts and feelings. The great challenge is to find ways to discover what kinds of deeper experience non-humans may have. We know, for example, that even rats can laugh, that they like to be tickled. Does this imply that they feel something like joy? Is it crazy to wonder if they might have a sense of humor? Chimpanzees have been observed to take solitary time near waterfalls to simply dance and shout with arms upraised to the skies. Are they feeling awe and wonderment? Are they praising creation? These are extremely difficult questions but, if we could answer them, they could have a profound impact on our understanding of ultimate reality.

Underlying all of these questions is the simple premise that we can and should know more about the living world's capacity to flourish. We live in a time of improving tools that help us to think differently and, in some cases, better. It may be that some forms of artificial intelligence will offer breakthrough devices or techniques to mediate between us and non-human life.

The goal of the Diverse Intelligences funding theme is to bring all three forms of intelligences together,

the human, non-human, and machine to expand and deepen human understanding, capacities and spiritual progress. We aim to examine the ways in which individual and social capacities emerge in other creatures and reflect upon how that is similar to and in what ways different from our own. By situating the human experience within a constellation of different forms of intelligence, we hope to forge an expanded vision of flourishing across the tree of life and learn more about our own development and evolution. We are open to projects that are intellectually high-risk but remain firmly committed to excellent, well designed, and carefully implemented science. We are also particularly eager to support catalytic work with the potential to support sustainable, long-term, and novel lines of inquiry.

Obstacles

Language seems to be a uniquely human invention. Hence, we lack a powerful tool to inquire into the experiences of non-human life – we can't just ask them how they feel. There also exists the problem that language is so ingrained in our own thoughts and actions that it presents a challenge to demonstrate which human capacities rely on our our language capabilities. As a result, it takes an arduous and painstaking process of observation, inference and validation before we can comfortably ascribe various intelligences to non-humans. Because of their disciplinary methodologies, researchers arriving at these questions from various fields have developed important differences in approach and their theories diverge. Some of these come with particular positions that are *a priori* unwelcoming of non-human intelligences so we may need to invest in theoretical explorations of the mind-body problem that are more versatile. It will require patience and care to support dialogue and shared insight across disciplinary boundaries in building a community of scholars who can cohesively address our core questions.

Non-human subjects are legion and each species, phylum and kingdom has its particular adherents. Corvid specialists look at crows and cetacean biologists study whales. There are some cognitive scientists who have spanned many species but a lack of breadth still creates a major barrier to progress. We shall seek to support work that reaches beyond the confines of a single kind of creature and produces more generalized results having broader implications.

Furthermore, there is the deep and abiding tendency for people to seek their own reflections in the world around them. The popular press takes up stories trumpeting human-like capacities in animals and funders gravitate, for example, toward studies about human-dog interactions and their capacity to enhance human wellbeing. While this sort of thing is exciting and validates many of our expectations of the world, it creates an obstacle to the sort of work that does not speak directly to humans' intelligences. By contrast, there has been a strong inclination among some animal behavior researchers to dismiss out of hand the possibility of complex cognitive abilities to non-humans. Just as overly anthropomorphizing other creatures carries risks and creates intellectual obstacles, so too does dogmatically rejecting these possibilities.

Effective research requires the development of robust and falsifiable hypotheses. But some of the most fascinating issues in non-human intelligence are also the hardest to operationalize into research

agendas. One major obstacle to productive science in these areas is the difficulty of establishing rigorous scientific paradigms that effectively probe nuanced issues such as consciousness, self, mind, spirit, and intelligences.

Finally, our tendency to focus on phenomena at human time and length scales can make us insensitive to those aspects of intelligences that are much slower, faster, bigger or smaller than ours. We will be particularly open to projects that extend beyond human ways of knowing. Such research has the sort of transformative potential that the donor sought, is far less likely to receive support from other funders, and yet remains deeply informative for human development because it highlights areas in which we can grow and expand our own intelligences.

Challenge Statement

Develop a coherent understanding of the kinds and qualities of non-human intelligences in the living world. *(The following is meant as a descriptive, not exhaustive overview of the tasks at hand.)*

1. Craft an overarching structure through which to uncover the social intelligences of non-human life that operates successfully across disciplinary boundaries.
    a. Develop a comprehensive framework to understand friendship, love, devotion and trust in non-human groups.
    b. Plumb animal approaches to conflict resolution and social coherence.
    c. Identify the qualities of expertise that are valued and valuable among non-human animals.
    d. Construct a coherent theory of animal culture with testable hypotheses and applications.
    e. Identify animal analogues of empathy, grief, joy, etc.
2. Develop a model for the sense of time, self, and planning in non-human creatures that applies across species.
    a. Build a coherent theory of “mental time travel” applicable to non-humans and apply it.
    b. Frame the concept of ‘self’ in a way that is appropriate for the varieties of non-human life.
    c. Identify activities such as play and pretense that underlie or support planning and strengthen adaptability.
3. Expand the time and length scales within which intelligences have been identified and seek intelligences in life of fundamentally different kinds.
    a. Identify and investigate intelligences that are present in life that acts very quickly or over short distances
    b. Identify and investigate intelligences that act or are instantiated over very long distances or time periods.
    c. Explore collective behaviors and group dynamics over long or short time and length scales that may be forms of group intelligences.
    d. Explore the possibility of synthetic, artificial life (or “living technology”) taking on the characteristics of natural life’s intelligences.

4. Discover whether non-humans experience the precursors to or forms of spirituality
    a. Determine if the appearance of laughter in animals implies a capacity for joy or even a sense of humor.
    b. Create a testable theory to explore the potential for wonderment, awe, or worship in non-humans.
5. Engage models of human development and evolution with new results from the animal world to enrich our capacities for spiritual development, moral development, and human thriving.
6. Deploy techniques and tools from human psychology and AI to enhance studies of other species.
7. Make substantial progress in explaining to what extent the behaviors we observe in other life forms are indicative of intelligences.

Areas we do not fund

1. We are not interested in supporting work on conditioned response or mechanistic models of animal cognition.
2. Cruel or inhumane research. We expect grantees to enunciate and abide by best practices of their fields to minimize suffering in their subjects.
3. Cataloguing or enumerating new examples of established behavior patterns
   While research on new species, for example, that reveal similar traits and behaviors to those already observed in other groups is important science, it is not central to the mission of this challenge and so will likely not receive funding.