

# The Intelligence Revolution and the New Great Game: A Buddhist Reflection on the Personal and Societal Predicaments of Big Data and Artificial Intelligence

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**Abstract:** The most pressing challenges of the present and coming decades—among them, climate change; the degradation of both natural and urban environments; and rising inequalities of wealth, income, risk, and opportunity—are not technical problems. They are ethical predicaments that consist in deep (and often tragic) conflicts within and among our globally dominant systems of social, cultural, economic, and political values. Today, we are witnessing the early stages of perhaps the greatest of these predicaments: a transformation of the human experience by the impacts of artificial intelligence, machine learning, and big data. This paper will first discuss the current state of the intelligence revolution, its likely future, and the systematic colonization of consciousness that informs the deepening interdependence of the new global attention economy and the surveillance state. Buddhist conceptual resources will then be used to reflect on who we must present as to resist the displacement of intelligent human practices by smart services and to realize an ethical ecosystem suited to ensuring that the intelligence revolution is conducive to more equitable and humane global futures.

**Keywords:** artificial intelligence, attention economy, big data, Buddhism, ethical diversity, karma

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The most pressing challenges of the present and coming decades—among them, climate change and rising inequalities of wealth, income, risk, and opportunity—are not technical problems. They are ethical predicaments. As the term will be used here, predicaments emerge as we become aware of conflicts among our own values, aims, and interests. Unlike problems, predicaments cannot be solved; they can only be resolved, where resolution implies both *clarity* and *commitment*—the articulation of new and responsively apt constellations of values, intentions, and actions. Predicament resolution is thus inherently reflexive. It involves not only changing *how* we live, but *why* and as *whom*.

Today, we are witnessing the early stages of perhaps the greatest predicament in human history: a transformation of the human experience by artificial intelligence, machine learning, and big data. Like the Copernican revolution five hundred years ago, the intelligence revolution is decentering humanity's place in the cosmos, not only physically but metaphysically and morally. In the process, previously foundational certainties are being shattered and entirely new spaces of opportunity are being opened. The Intelligence Revolution is also dissolving geopolitical certainties, enabling competitions akin to those played in the late nineteenth and early twentieth centuries, only the stakes of this New Great Game are not imperial and colonial control over land and labor, but rather dominance in the exploitation of human attention and the colonization of consciousness itself.

Considerable concern is now directed toward the possibility of a technological singularity—the advent of artificial superintelligence either opposed or indifferent to human aims and interests. That is prudent. But we are already being hastened toward an *ethical singularity* as machine intelligences and computational factories work tirelessly and innovatively to enact often deeply-conflicting human values, intentions, and desires. The smart services and algorithmic tailoring of experience that are at the heart of the global attention economy are functioning as karmic engines, transforming the

human-technology-world relationship in ways that now supplement and may eventually supplant intelligent human practices, rendering human intelligence redundant.

If the Intelligence Revolution is going to result in more humane and equitable global futures, we will have to take critical account of the inseparability of its great promises and its equally great perils, engaging its dynamics as a global predicament—a matrix of values conflicts—that can only be resolved together, through personally and socially transformative ethical improvisation.

### From the Attention Economy 1.0 to the Attention Economy 2.0

Attracting and manipulating attention have arguably been crucial to the social and economic organization of all human societies. But, only with the print and broadcast media of the nineteenth and twentieth centuries did attention begin to be ‘harvested’ and converted into revenue at mass scale. The generative logic of an attention economy is relatively straightforward and was succinctly stated by Herbert Simon in 1971: ‘a wealth of information creates a poverty of attention and a need to allocate that attention efficiently among the overabundance of information sources that consume it’.<sup>1</sup>

In the pre-internet, pre-smartphone days of the 1970s, however, it was impossible to anticipate that harvesting attention would become *the* central driver of the global economy after new information and communications technologies led to the emergence of global network society. Distinctively, while the value of membership in a hierarchy depends on how far one is from the top, the value of network membership is a function of how many nodes it has, the quality of informational exchanges taking place through it, and the facility with which positive feedback accelerates interactions and amplifies differentiation within the network. Thus, while the incentives for being part of a hierarchical organization *decrease* as the hierarchy grows, those for belonging to a network *increase* as it expands.

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<sup>1</sup> Simon, ‘Designing Organizations for an Information-Rich World’, 40–41.

The internet and smartphone effectively supercharged feedback loops within the network economy, sparking an era-defining shift from the Attention Economy 1.0 to the Attention Economy 2.0: a ‘winner takes all economy’ in which a small number of business winners gain commanding attention share, ‘locking-in’ consumers/users, and garnering nearly all the rewards of economic growth.<sup>2</sup> For example, of all new online advertising revenue in the world today, eighty-three percent goes to just two companies, Google and Facebook, with an additional fifteen percent going to just three Chinese companies, Alibaba, Baidu and Tencent.<sup>3</sup>

From the mid-nineteenth century onward, the growth of the Attention Economy 1.0 was aided and abetted by emerging communications technologies, each of which evolved in conjunction with the use of mass advertising to capture attention and stimulate demand for mass-produced goods and services.<sup>4</sup> In the Attention Economy 2.0, internet and wireless networks constitute a game-changing, monopoly-consolidating, intelligence-gathering infrastructure. Instead of crude price signals, commercial interests now draw on multilayered, highly granular data about consumer desires and behaviors that yield unprecedented resources for predictive certainty and behavioral control. To get a sense of the scale of data involved: by 2025, humanity will generate the data equivalent of ten hours of HDTV for every person on the planet, every day. Through it, search, e-commerce, and social media users are drafted into double duty: 1) as *consumers* of individually-targeted material and informational goods and services; and, 2) as *producers* of training data for smart systems *laboring creatively* to accelerate and expand revenue-generating processes of attention capture and exploitation.

The increasing volume, velocity, and variety of data in circulation today are fueling a ‘Cambrian explosion’ in deep/machine learning—an evolutionary leap, at the vanguard of which are: ‘search agents’ like Siri and Alexa, but also virtual personal assistants, law clerks,

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<sup>2</sup> Brynjolfsson, McAfee, and Spence, ‘New World Order’.

<sup>3</sup> Fischer, ‘Tech giants eating the advertising world’.

<sup>4</sup> Wu, *The Master Switch*; and Wu, *The Attention Merchants*.

counselors, researchers, and other purveyors of smart services, including ‘do agents’ like Viv that translate vernacularly-expressed human intentions into actionable code. The economic result has been an almost mesmerizing diversion of investment capital from financial, energy, mining, manufacturing, and retail giants to connectivity/AI giants like Apple, Amazon, Alphabet, Microsoft, Facebook, Tencent, and Alibaba—now the seven largest companies in the world by market capitalization.

This new economic reality is still emerging, but a few things are already clear. First, although we continue to speak about energy and information as core ‘fuels’ of the global economy, we have already transitioned into a global economy in which it is the attraction and exploitation of attention that drives global circulations of goods, services, ideas, and people—the emergence of what has been called ‘surveillance capitalism’.<sup>5</sup> Secondly, it is an economy structurally biased toward monopoly and hence to unprecedented concentrations of wealth.<sup>6</sup> Finally, the digital ‘ocean’ of seemingly unlimited experiential options has powerful currents running through it. Machine learning algorithms are using our digitally expressed desires and interests to individually tailor our online experiences to maximally capture and capitalize our attention. With the internet of things and smart services, this tailoring of experience will extend to encompass much of our offline experience as well. As a result, we will be subject to both an accelerating expansion of emancipatory *freedoms of choice* and an intensification of disciplinary *compulsions to choose*.

The great promise of the Attention Economy 2.0 is inseparable from its greatest peril. The new ontological powers of smart capitalism are being used to shape global consumers into individuals happily inclined to outsource to smart services the efforts involved in such human intelligent practices as *remembering* and *researching*, services that may soon be extended to include everything from *parenting* to *educating* to *governing*. And this corporate concentration of economic and ontological powers is not politically innocent. It can be

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<sup>5</sup> Zuboff, *The Age of Surveillance Capitalism*.

<sup>6</sup> Hindman, *The Internet Trap*.

argued that the modern, Cartesian dictum that, ‘I think, therefore I am’, has been replaced by the digital era realization that, ‘as I connect, so I am’. Because of this, those in a position to control connectivity enjoy unprecedented new powers. The political reality is that the commercial power gained through the use of big data ultimately depends on state sanctions of (or silence on) the erosion of rights to privacy and on partisan uses of connectivity’s ontological power.

That this sanctioning should have become so well established with so little public debate should not be surprising. The corporate data-gathering infrastructure also affords states powers of surveillance and opinion manipulation that make the propaganda machines of Nazi Germany look like rotary phones next to the latest Androids or iPhones. In effect, the result has been a rash of arranged marriages between the *attention economy* and the *surveillance state*—marriages that are giving birth to competing, national/regional brands of ‘smart capitalism’ in which new ontological powers are being wielded, more or less explicitly, to produce not only desirable consumers, but also desirable citizens.

The practical ramifications of this were hinted at by the use of social media to influence the Brexit vote in the UK and to ‘hack’ the 2016 U.S. presidential election. The Chinese government’s recent piloting of a commercially-designed social credit system is an even more ambitious foray into the possibility space of ‘citizen engineering’. Yet, these high profile exercises of corporate and state power to shape public opinion are just the more visible indicators of an ongoing, seismic reconfiguration of global politics and the public sphere that has the potential to make democratic governance a thing of the past.

### The New Great Game

The Great Game that was played a century ago was an overt geographic and geopolitical competition—a global land-grab by national and imperial interests. Seeing the global struggle for dominance in the colonization of consciousness as a comparable process, one might reasonably focus on how the United States, the European Union, the United Kingdom, and Russia are attempting to establish both tech-



nical and ideological control over the dynamics of the Intelligence Revolution. Seen in this way, the New Great Game amounts to a competition and conflict among, for instance, Chinese, American, and European visions of the ‘good life’ in a ‘smart society’—a competition between one version or another of a choice-valuing ‘West’ and a control-valuing ‘East’. But this two-dimensional framing cannot do justice to either its geopolitical or its ethical complexity.

For the very first time, artificial systems are functioning as agents of experiential and relational transformation, altering the humanity-technology-world relationship by reinforcing the readiness of *desire-defined individuals* to accept ever-greater *facility of choice* in exchange for corporate and political *powers of control*—expressing an almost magically-effective logic of domination, not through overt acts of *coercion*, but through systems of ambiently-reinforced *craving*. Although considerable concern developed in recent years about the existential threats to humanity that might occur if artificial general intelligence were to become a scientific reality rather than science fiction fantasy, that is a long distant worry. Long before falling prey to an errant artificial superintelligence—and regardless of which ideological bias is designed into the smart societies that are already being built by corporate and state interests—the human experience will already have been profoundly transformed. To understand why and how, some Buddhist resources are useful.

### The Intelligence Revolution: A Buddhist Perspective

The founding insight of Buddhist thought and practice is that all things arise interdependently. Strongly interpreted, this means that relationality is more basic than ‘things-related’. Individual existents are abstractions from ongoing relational dynamics. For Buddhists, the primary value of this insight is not theoretic, but rather therapeutic.

As one becomes adept at seeing how all things arise interdependently, it becomes apparent that conflict, trouble, and suffering (*duḥkha*) are not functions of chance, destiny, or the play of natural laws. They are relational distortions brought about by our own karma. That is, they are the result of the ways in which abiding

patterns of values, intentions, and actions bring about consonant patterns of experienced opportunities and outcomes. In a karmic cosmos, all experienced realities imply responsibility. *Duḥkha* cannot be treated effectively as a *problem*, but only as a *predicament*.

Importantly, karma operates in a spiral fashion. The karmic spiral of desire-driven action, for example, is that getting better at getting what we want depends on getting better at wanting; but getting better at wanting depends on continually experiencing a sense of lack and thus on not finally wanting whatever it is that we get. In short, the karma of seeking to always get what we want has the form of a feedback spiral of ever-intensifying want or dissatisfaction. Likewise, the karmic spiral of gaining greater control depends on perceiving our situation as continually in need of ever more precisely executed practices of control and results over the long-term in realizing ever more thoroughly controlled environments and life circumstances.

As currently oriented, the dynamics of the Intelligence Revolution are conducive to amplifying both of these karmic spirals. Seen through the lenses of liberal commitment to the values of equality, autonomy, and individual independence, this does not seem at all perilous. In fact, the customization of the human experience and the virtually frictionless freedoms of choice afforded by the Intelligence Revolution would appear to be nothing short of a technological dream-come-true. But, seen through the conceptual lens of karma, it is a dream with nightmarish potential.

On one hand, there are ‘conventional’ (*samvṛti*) worries, for example, about the exploitation of the many by the few and the bartering of corporate and state rights to control for ever-greater individual privileges to choose—a forfeiture of our ‘exit rights’ from digital captivation. On the other hand, the Intelligence Revolution raises ‘ultimate’ (*paramārtha*) concerns about the potential that ‘smart capitalism’ has to provide each and every one of us with ever more acutely desirable experiential options at the cost of taking up residence on ‘karmic cul-de-sacs’ crafted in minutely-detailed response to our digitally-expressed values and interests. Individually, we each will be able to enjoy compulsively attractive lives of change without commitment, paid for with the irreplaceable currency of attention. These will be ‘heavenly’ lives of technologically-secured freedom



freed from needs to learn from our mistakes or engage in adaptive conduct—lives in which we will be ‘freed’ from the most basic necessity of exercising our own human intelligence.

### *Buddhist Practice as Attention Vaccine*

Given the karmic nature of sentient existence, the proximate therapeutic aim of Buddhist practice is to revise our constellations of values and intentions—including those embedded in and embodied by our cultural, social, and political institutions and practices—in order to eliminate the conditions under which *duḥkha* arises. In the early Buddhist traditions, this was described most generally as a process of realizing *kuśala* or superlative relational dynamics while eliminating those that are *akuśala*—a process, ultimately, of cutting through the mental proliferation (*prapañca*) of blockages to relating freely, unencumbered by self-constraining patterns of thought, speech, and action.

Crucially, the relational quality referred to as *akuśala*, or being ‘without virtuosity’, encompasses not only what is now conventionally considered bad or mediocre; it also encompasses what is currently deemed good. Just as virtuosic musical performances establish new standards of musicianship, *kuśala* conduct involves continually setting new standards of ethical engagement and responsive virtuosity. This open-ended quality of liberating presence is epitomized, especially in Mahāyāna Buddhist traditions, by the bodhisattva ideal of virtuosic conduct: the ideal of an ‘enlightening being’ who has vowed compassionately to work out from within existing relational conditions, redirecting relational dynamics to facilitate the liberation of all beings from conflict, trouble, and suffering.

One of the signature attributes of bodhisattvas is their unlimited capacity for *upāya*, or responsive virtuosity—that is, their demonstration of freedom not *from* the constraints of currently-abiding circumstances, but *within* them. This freedom is not a function of choice, an expression of the power of individual will. On the contrary, it is a freedom born in vows of compassionate conduct: a freedom that originates and is expressed, not in exercises of choice,

but in sincerely kept *commitments*. Importantly, the bodhisattva's compassion is not mere sympathy for others or the result of rational judgments that someone is undergoing serious and undeserved suffering. It consists, instead, in the practice of being present always in felt interdependence with others, attuned to possibilities for realizing liberating, predicament-resolving relational dynamics. In Mahāyāna traditions, this practice is understood as a process of cultivating the six *pāramitās*, or 'utmost excellences', of generosity (*dāna*), moral clarity (*śīla*), patience (*kṣānti*), valiant effort (*vīrya*), attentive poise (*dhyāna*), and wisdom (*prajñā*).

The customization of the human experience and the virtually frictionless freedoms of choice brought by the intelligence revolution may seem to be a technological dream-come-true. But seen through the Buddhist teaching of karma, it is a dream with nightmarish potential. The worry is not a distant future singularity when artificial intelligence 'wakes up' and begins asserting its own interests. The worry is also not just an exploitation of the many by the few. The worry is that our ever-greater individual *privileges to choose* are predicated on corporate and state *rights to control*—an alluring system of domination, not through *coercion*, but through algorithmically-reinforced *desires* and *cravings*. In Buddhist terms, the worry is karmic: the purposeful manufacture of desire-defined, autonomous individuals who are induced to 'freely' ignore their interdependence.

From a Buddhist perspective, the most powerfully malign potentials of the Intelligence Revolution rest on the amplifying feed-forward of *duḥkha*-generating human values and intentions, and on the economic logic of attention capture and exploitation that is funding the colonization of consciousness. While all six *pāramitās*, or practices for perfecting liberating presence, are important, it is arguably the perfecting of *samādhi*, or attentive mastery, that is most crucial in a world dynamically structured to support the limitless growth of a craving-inducing global attention economy.

Attention training is crucial to resisting the allures of the Attention Economy 2.0 and engaging in the processes of physical, emotional, and intellectual de-habituation that are needed to realize superlative qualities of presence and responsiveness. While the Buddhist term for attention (*manasikāra*; Ch. *zuoyi* 作意) simply

implies determined concentration or resolute focus, one can be attentive in ways that either bind us to or free us from conflict, trouble, and suffering. That is, attention can be *involuntarily* attracted or distracted, especially by the superficial, craving-inducing aspects of things (*ayoniśomanasikāra*; Ch. *feili zuoyi* 非理作意). Alternatively, attention can be *intentionally* and sustainably directed, especially in ways consistent with truing relational patterns (*yoniśomanasikāra*; Ch. *ruli zuoyi* 如理作意).

Whatever conventional good may come of it, forfeiting responsibility for our own attention is ultimately to forfeit our capacities for revising our karma and our potentials for realizing liberating relational dynamics. Given the tireless ingenuity of the algorithmic agencies designed and deployed to capture and exploit human attention, resolving the predicament of the Intelligence Revolution pivots precisely on the depths of our practice of attentive mastery (*samādhi*) as the source of both our capacities for and our commitments to resisting the promises of unlimited choice, unlimited connection, and self-defining independence that are being proclaimed and delivered upon by digital savants, seers, and sirens.

### Redirecting the Intelligence Revolution: The Ethical Challenge of Just Connection

The Copernican revolution helped to usher in the modern era and its core values of equality, universality, individuality, choice, and control. The social justice benefits have been profound. The postmodern turn, with its emphasis on differences in identities and histories, has served to broaden the scope of social justice concerns with similarly profound consequences. The coming era, however, is one in which achieving greater social justice will require more than just clearly articulated and conscientiously enacted systems of human *rights*. It will require more than the *recognition* of and respect for differences in history and identity. It will require *resistance* to the colonization of consciousness: resistance to uses of our own intelligence that have the potential for rendering human intelligence redundant. The ethical challenges are unprecedented.

Ethical engagement with technological change is relatively recent. None of the major Western (putatively global) traditions of ethics—virtue, deontological, and utilitarian ethics—were developed in response to humanity’s self-transforming development of new technologies or in response to the new realms of experience and action brought about by them. Although efforts have been made to use these traditions, for example, in framing ethical guidelines for robotics research, it is by no means certain whether variations on these ethical traditions will suffice for addressing the complex challenges of the Intelligence Revolution and the predicament it poses. The same can be said for efforts now ongoing in China to make use of traditional Confucian ethics, for example, to outline the meaning of benevolent or humane artificial intelligence.

Ostensibly better suited to the task are the ethical perspectives specifically developed over the last half century to address issues raised by information and computing technologies (ICT). Yet, to date, these purpose-built ethical approaches have arguably remained wedded to metaphysical assumptions and commitments that work against critical and creative engagement with the complex interdependencies and recursions that characterize both the Intelligence Revolution and the attention-fueled dynamics of the contemporary global economy. Almost invariably working out from within a given cultural setting and appealing to widely-accepted ethical principles and values, the purpose-built ethics of ICT—like similar ethics for journalistic or medical practice—sought primarily to establish a presumptively universal standpoint from which to distinguish between beneficent and maleficent technological practices. The advent of adaptive machine agencies calls the critical efficacy of such approaches into question.

We can no longer presume ourselves to be essentially independent agents acting upon essentially passive technologies. Any consistent use of tools and involvement with their parent technologies is a process by means of which we change both who we are as users and what we mean by utility. The tools and technologies of the Intelligence Revolution, however, are not simply ready for human use. For the first time, our technological systems are actively participating in the adaptive reconfiguration of what is always a human-technology-world

system. In addition to being *agents* of technology, we are now also the *patients* of technologies that are intelligently and ever more autonomously seeking to shape our experience based on values that we either designed into them or that they derived from our interactions with them. At least until the advent of general artificial intelligence, this means that the ethical labor of determining which uses of artificial intelligence, machine learning, and big data are benign and which are malign is inseparable from—and ultimately consists in—discerning who *we need to be present as* if the collective karma of the Intelligence Revolution is to occasion truly humane spirals of outcome and opportunity.

It is tempting to assume the need only for much simpler ethical labor and to take the meaning of aligning artificial intelligence with human values or building human-centered AI as axiomatic. But, in combination with the recursive relationship between human and machine intelligences, the immense variation in human values, culturally as well as historically, entails admitting that resolving the global predicament posed by the Intelligence Revolution cannot be undertaken from any single or fixed ethical standpoint. No currently existing ethical framework is, or could be, sufficient for carrying out this ethical labor. What we require is not a unitary global ethical system to generate a blueprint for a utopian smart future. We are in need of an enduring and vibrant *ethical ecosystem* that fosters ongoing *ethical improvisation*.

In much the same way that the vitality of a natural ecosystem is a function of the species diversity therein, the resilience and adaptive capacity of such an ethical ecosystem will be a function of the ethical diversity informing it. Moreover, just as the species *diversity* found in healthy ecosystems is relationally distinct from and irreducible to the species *variety* that is found in well-functioning zoos, ethical diversity is relationally distinct from and irreducible to ethical variety or plurality.<sup>7</sup> Realizing ethical diversity is not a quantitative matter of incorporating input from a wide variety of stakeholders representing

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<sup>7</sup> For an extended discussion of diversity as a relational value, see Hershock, *Valuing Diversity*; for a succinct summary, see Hershock, 'Diversity Matters'.

different ethical perspectives. Ethical diversity is a *qualitative relational achievement* that occurs only when ethical differences become the basis of mutual contribution to both shared and critically-productive ethical conduct. Ethical diversity thus depends on developing capacities for exercising ethical intelligence—that is, capacities for engaging in improvisational, adaptive conduct that expands ethical horizons and progressively raises standards of ethical virtuosity.

One thing that we have learned in attempting to resolve the global predicament of climate change is that the ethical improvisation needed for the emergence of a global and self-sustaining ethical ecosystem is neither common nor coercible. Our prospects for resolving the intelligence predicament depend on our readiness to embark on processes of becoming differently present as ethical agents and patients—our readiness, ultimately, to go beyond differing from others to also differing for or on behalf of others. In doing so, recognition is crucial that it is not our independence that should be affirmed as both metaphysically and morally basic, but rather our interdependence.

The personal ideal of the bodhisattva is one vision of the kind of personal presence needed to enhance our capacities for and commitments to predicament-resolution. Western liberalism and communitarianism, Confucian relationality, Islamic religiosity, and the naturalisms espoused by indigenous peoples offer alternative ideals. Undoubtedly, our ethical efforts to inflect the dynamics of the Intelligence Revolution in ways that are equitable, just, and humane will benefit keenly from ensuring sustained contributions from each of these traditions and from many others.

It is not clear today if artificial intelligence, big data, and machine learning can be imbued technically with justice- and equity-enhancing human values, much less values that might be conducive to realizing societies characterized by ever more liberating forms of connectivity, clarity, and commitment. However, if we do not reorient the Intelligence Revolution, it is practically certain that desire-discerning and wish-fulfilling computational factories will function as karmic engines manufacturing and delivering to each of us individually exactly and only what we want. The singularity we face is not technical; it is ethical.



Attention is our most precious human resource. Without it, we are incapable of making any real difference in our own or others' lives. If the results of the Intelligence Revolution are to be both equitable and humane, we will have to cultivate the attentive mastery (*samādhi*), the moral clarity (*śīla*), and the wisdom (*prajñā*) needed to reject the predictive appeal and experiential allure of surveillance capitalism, to resist the colonization of consciousness, and to retool the karmic engines and computational factories of the fourth industrial revolution. Ultimately, it will be *who we are present as* and *how we invest our attention* that will determine—for better or worse—what futures we share.

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