Short Elucidating Note 104: Using the conjunctural causality truth table to point out step by step the possible evolution routes for a shift from deep environmental optimality thinking to fully conjunctural optimality thinking a la true sustainability markets

By

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Abstract

If we know the model structure of perfect paradigms we can create the conjunctural state under which each of them operates, creating in the process model structure and conjunctural state truth tables. Knowing both the model structure and the conjunctural state we can state the structure of paradigm shifts from deep paradigms to true sustainability paradigms, either as a two step shift route or as a one step shift route using both model variability theory and conjunctural state variability theory. This paper is about framing the model and the conjunctural state shift from deep environmentalism to yellow sustainability or true sustainability while highlighting the main implications of each deep paradigm shift route emphasizing that when the shift takes place the independent environmental pareto optimality thinking under which it operates is left behind as it takes higher level of responsibility either at a step by step shift or by one step shift, but at each stage in the evolution the core value of environmental responsibility is saved/kept.

Key words

Conjunctural state, Model structure, Deep environmentalism, Green market, Socio-environmental market, Yellow sustainability, true sustainability, conjunctural state, deep environmentalism pareto optimality state, green market pareto optimality state, socio-environmental market pareto optimality state, yellow sustainability pareto optimality state,

The model structure and the conjunctural state structure of each market when you have a system with social (A), economic (B), and environmental (C) components so that M = A + B +C

The truth table showing the paradigm structure and conjunctural state of each of the 8 paradigm possible in a system where there are social components(A), economic components (B) and environmental components (C) has been recently shared (Muñoz 2025a) as in similar fashion as shown in Table A below, where a capital letter means that component is present in dominant

or active form (e.g. A = 1 = present in dominant form); and where a lower case letters means that the component is absent in dominant or active form (e.g. a = 0 = absent in dominant form):

TABLE A PARADIGM AND CONJUNTURAL STATE TRUTH TABLE

Paradigm structure		**Conjunctural state**
M1 = abc = the fully unsustainable market	**=**	**(0,0,0)**
M2 = Abc = the deep socialism market	**=**	**(1,0,0)**
M3 = aBc = The deep economy market	**=**	**(0,1,0)**
M4 = abC = The deep environmental market	**=**	**(0,0,1)**
M5 = ABc = The red market	**=**	**(1,1,0)**
M6 = aBC = The green market	**=**	**(0,1,1)**
M7 = AbC = The socio-environmental market	**=**	**(1,0,1)**
M8 = ABC = Yellow sustainability market	**=**	**(1,1,1)**

The possible shift routes for the deep environmentalism market towards yellow sustainability.

Deep environmental markets have two externality problems, social externalities(a) and economic externalities (b), and depending on whether we want to fix those externality problems one problem at a time or all problems at the same time, then we can have two step deep environmentalism paradigm shift routes towards yellow sustainability such as the green market route or the socio-environmental market route or we can have one step deep environmentalism paradigm shift route towards yellow sustainability, and these routes linked to maintaining the key paradigm value of environmental responsibility are highlighted with yellow in Table B below:

TABLE B PARADIGM AND CONJUNTURAL STATE TRUTH TABLE

Paradigm structure	**Conjunctural state**
M1 = abc = the fully unsustainable market	**= (0,0,0)**
M2 = Abc = the deep socialism market	**= (1,0,0)**
M3 = aBc = The deep economy market	**= (0,1,0)**
M4 = abC = The deep environmental market	**= (0,0,1)**
M5 = ABc = The red market	**= (1,1,0)**
M6 = aBC = The green market	**= (0,1,1)**
M7 = AbC = The socio-environmental market	**= (1,0,1)**
M8 = ABC = Yellow sustainability market	**= (1,1,1)**

Two possible ways to point out the evolution routes for a shift from deep environmental optimality thinking to fully conjunctural optimality thinking a la sustainability market based Pareto optimality thinking

There are different, but consistent ways to point of the paradigm evolution routes, one is using paradigm or model component shift theory, where we look at component variability as we move up vertically from lower responsibility models to higher responsibility ones, and the other way is using conjunctural state shift theory, where we look at the evolution of conjunctural states as we move up vertically from independent pareto optimality thinking to partially codependent optimality thinking to fully codependent optimality thinking; and these two ways are pointed out one by one in detail below, in this case focused on possible deep environmentalism shift routes.

The case of deep environmentalism shift routes in terms of model structure shift under component variability theory

As indicated above and consistent with the truth table above, the deep environmentalism model has 3 different paradigm shift routes towards the yellow sustainability model, a two step model evolution route via green markets, a two step model evolution route via socio-environmental markets, and a one step model route, a direct model shift to the yellow sustainability model, each of them is described below as vertical paradigm shift routes:

A) The model shift via the green market route

Below is an analytically and graphical view of the deep environmentalism model from the point of view of model shift via green markets:

i) Analytically

The structure of the shift from deep environmentalism based model optimality (M4) to yellow sustainability based model optimality (M8) in two steps via green markets (M6) is shared below:

I[b] I[a]

M4 = abC----------→M6 = aBC----------→M8 = ABC

Step 1 Step 2

In the first step, when deep environmentalism (M4) internalizes the economic externality I[b] it shifts to green markets (M6), a shift from an environment only market (M4) to an eco-

economic market or environment and economy market (M6). In the second step, when green markets (M6) internalize the social externality I[a] they shift to yellow sustainability markets (M8), a shift from an environment and economy market to a society, economy and environment market or yellow sustainability market. See here, the first shift is from a full independency based market to a partially codependent market, and then a shift from a partially codependent market to a fully codependent market. Notice that when at M6 we leave the knowledge base of M4 behind, and when at M8 we leave both the knowledge base of M4 and M6 behind.

Implication 1:

The shift from deep environmentalism (M4) to yellow sustainability (M8) is first a shift from environmental Pareto optimality to eco-economic based Pareto optimality, and then a shift from eco-economic Pareto optimality to true sustainability based Pareto optimality; and hence, it reflects a series of shifts towards higher level Pareto optimality positions.

ii) Graphically

The two step shift from deep environmentalism (M4) to yellow sustainability (M8) via green markets (M6) can be indicated graphically as shown below:

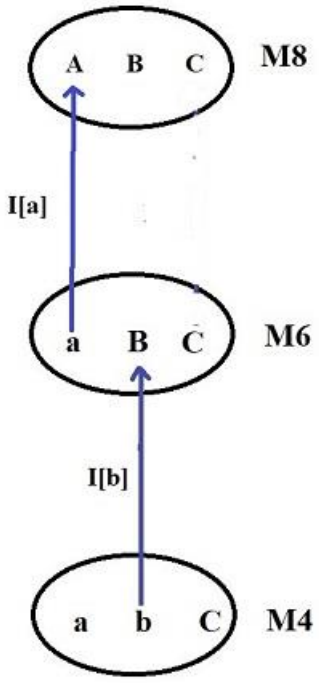

Figure 1 The two step shift from deep environmentalism to yellow sustainability via green markets

Implication 2:

The shift from deep environmentalism (M4) to yellow sustainability (M8) via green markets (M6) is a shift from lower level Pareto optimality positions or lower model responsibility positions to the highest level Pareto optimality position or highest model responsibility position, a shift from full externality irresponsibility (M4) to partial externality responsibility (M6) to full externality responsibility (M8). As we go up, the knowledge base of the previous paradigm no longer works.

B) The model shift route via the socio-environmental market route

Below is an analytically and graphical view of deep environmentalism from the point of view of model shift via socio-environmental markets:

i) Analytically

The structure of the shift from deep environmentalism based model optimality (M4) to yellow sustainability based model optimality (M8) in two steps via socio-environmental markets (M7) is indicated below:

I[a] I[b]

M4 = abC----------→M7 = AbC----------→M8 = ABC

Step 1 Step 2

In the first step, when deep environmentalism (M4) internalizes the social externality I[a] it shifts to socio-environmental markets (M7), a shift from an environment only market (M4) to a socio-environmental market or society and environment market (M7). In the second step, when socio-environmental markets (M7) internalize the economic externality I[b] they shift to yellow sustainability markets (M8), a shift from a society and environment market to a society, economy and environment market. See here, the first shift is from a full independency based market to a partially codependent market, and then a shift from a partially codependent market to a fully codependent market. Notice that when at M7 we leave the knowledge base of M4 behind, and when at M8 we leave both the knowledge base of M4 and M7 behind.

Implication 3:

The shift from deep environmentalism (M4) to yellow sustainability (M8) is first a shift from environmental pareto optimality (M4) to socio-environmentally based pareto optimality (M7), and then a shift from socio-environmental pareto optimality (M7) to true sustainability based pareto optimality (M8); and hence, it reflects a series of shifts towards higher level pareto optimality positions.

ii) Graphically

The two step shift from deep environmentalism (M4) to yellow sustainability (M8) via socio-environmental markets (M7) can be indicated graphically as shown below:

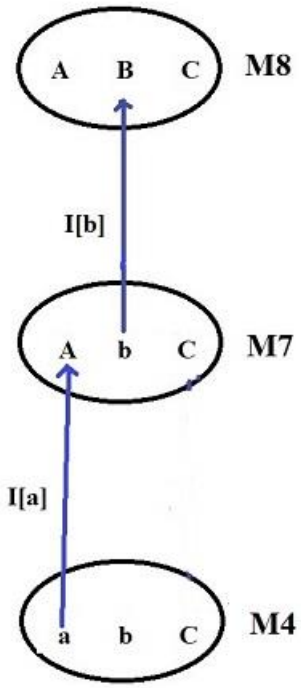

Figure 2 The two step shift from deep environmentalism to yellow sustainability via socio-environmental markets

Implication 4:

The shift from deep environmentalism (M4) to yellow sustainability (M8) via socio-environmental markets (M7) is a shift from lower level Pareto optimality positions or lower model responsibility positions to the highest level Pareto optimality position or highest model responsibility position, a shift from full externality irresponsibility (M4) to partial externality responsibility (M7) to full externality responsibility (M8). As we shift upwards, we leave the knowledge base of the previous model is left behind.

C) The one step shift route from deep environmentalism to yellow sustainability

The one step shift from deep environmentalism (M4) to yellow sustainability (M8) can be represented analytically and graphically as summarized below:

i) Analytically

When the deep environmental market (M4) internalizes the socio-economic externality or social and economic externality I[ab], it shifts to yellow sustainability markets (M8) as indicated below:

I[ab]

M4 = abC----------→M8 = ABC

One step shift

Implication 5:

The one step shift from deep environmentalism (M4) to yellow sustainability (M8) is a shift from environmental pareto optimality (M4) to true sustainability based pareto optimality (M8); and hence, it reflects a direct shift towards the highest level pareto optimality position. Here the shift is from a full independency based market to a full codependency based market. Notice that when at M8 we leave the knowledge base of M4 behind.

ii) Graphically

The one step shift from deep environmentalism (M4) to yellow sustainability (M8) can be indicated graphically as highlighted below:

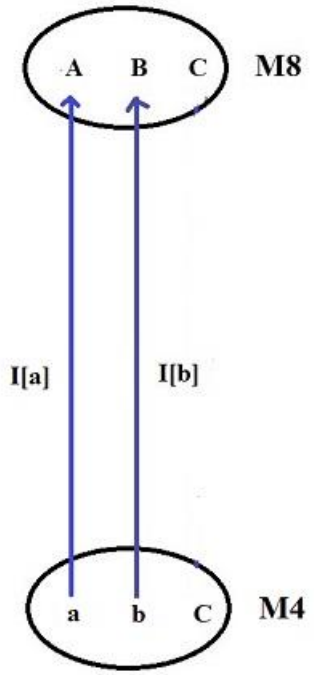

Figure 3 The one step shift from deep environmentalism to yellow sustainability

Implication 6:

The one step shift from deep environmentalism (M4) to yellow sustainability (M8) is a shift from lower level Pareto optimality positions or lower model responsibility positions to the highest level Pareto optimality position or highest model responsibility position, a shift from full

externality irresponsibility (M4) to full externality responsibility (M8). See that the knowledge base of M4 no longer works in M8 so environmental Pareto optimality thinking is left behind.

D) The all model shift routes possible for deep environmentalism towards yellow sustainability graphically

We can place all shift routes in the same plane to visualize systematically that when we shift from lower level responsibility models to higher level responsibility ones this action goes one to one with going from lower pareto optimality based models to higher pareto optimality based models vertically while leaving the knowledge base of the previous paradigm behind as lower level pareto optimality knowledge no longer works in higher level optimality ones as shown below in Figure 4:

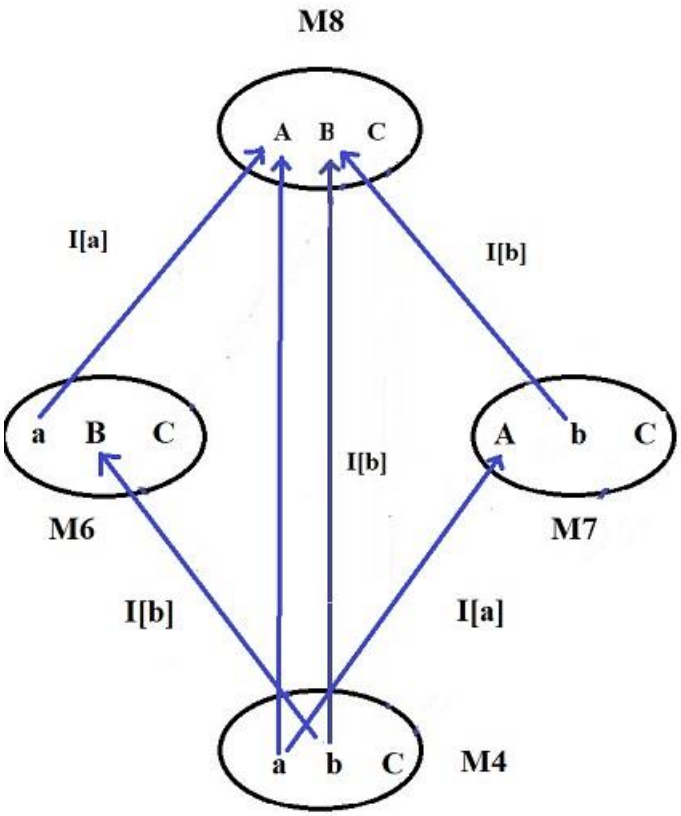

Figure 4 All the paradigm shift routes for deep environmentalism indicating a vertical movement as the knowledge base of the previous model is left behind when a paradigm shift takes place

Implication 7:

The Pareto optimality knowledge base of higher optimality based paradigms does not work in lower levels ones; and the Pareto optimality knowledge base of lower optimality based paradigms do not work in higher level paradigms and it is left behind when the paradigm shift takes place. The knowledge base of M4 does not work in M8 or M6 or M7.

The case of deep environmentalism shift routes in terms of conjunctural structure shift under conjunctural state variability theory

As indicated above and consistent with the truth table above, the deep environmentalism conjunctural state has 3 different conjunctural state paradigm shift routes towards the yellow sustainability conjunctural state, a two step conjunctural state evolution route via green markets, a two step conjunctural state evolution route via socio-environmental markets, and a one step conjunctural state route, a direct shift to the yellow sustainability conjunctural state, each of them described below as vertical paradigm shift routes:

A) The two step conjunctural state shift from deep environmentalism (M4) to the yellow sustainability conjunctural state (M8) via the green market conjunctural state (M6)

i) Analytically

The structure of the shift from deep environmentalism based conjunctural state optimality (M4) to yellow sustainability based conjunctural state optimality (M8) in two steps via the green market conjunctural state (M6) is indicated below:

I[b] I[a]

M4 = (0,0,1)----------→M6 = (0,1,1)----------→M8 = (1,1,1)

Independent Partially codependent Fully codependent

In the first step, when the deep environmentalism conjunctural state (M4) internalizes the economic externality I[b] it shifts to green market conjunctural state (M6), a shift from a independent environment only conjunctural state market (M4) to the partially codependent eco-economic based conjunctural state market or environment and economy conjunctural state market (M6). In the second step, when the green market conjunctural state (M6) internalize the social externality I[a] it shifts to yellow sustainability market conjunctural state (M8), a shift from an environment and economy conjunctural market or partially codependent market to a society, economy and environment market based conjunctural state market or a fully codependent market. Hence, first there is a shift from a fully independent conjunctural state to a partially codependent conjunctural state; and then we have a shift from a partially codependent conjunctural state to a fully codependent conjunctural state. Notice that when at the conjunctural state of M6 we leave the knowledge base of the conjunctural state of M4 behind, and when at conjunctural state M8 we leave both the knowledge base of the conjunctural state of M4 and of the conjunctural state of M6 behind.

Implication 8:

The shift from deep environmentalism conjunctural state (M4) to yellow sustainability conjunctural state (M8) is first a shift from environmental pareto optimality conjunctural state to eco-economic based pareto optimality conjunctural state, and then a shift from eco-economic pareto optimality conjunctural state to true sustainability conjunctural state based pareto optimality; and hence, it reflects a series of shifts towards higher level pareto optimality conjunctural state positions.

ii) Graphically

The two step shift from deep environmentalism conjunctural state (M4) to yellow sustainability conjunctural state (M8) via green markets conjunctural state (M6) can be indicated graphically as listed below:

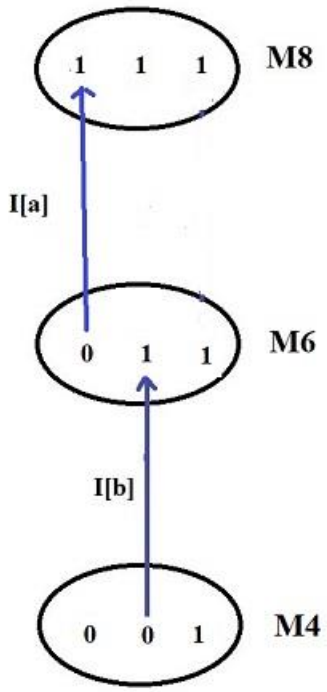

Figure 5 The two step conjunctural state shift from deep environmentalism to yellow sustainability state via the conjunctural state of green markets

Implication 9:

The shift from deep environmentalism conjunctural state (M4) to yellow sustainability conjunctural state (M8) via green market conjunctural state (M6) is a shift from lower level pareto optimality conjunctural state positions or lower conjunctural state responsibility positions to the highest level pareto optimality conjunctural state position or highest conjunctural state responsibility position, a shift from full externality conjunctural state irresponsibility (M4) to partial externality conjunctural state responsibility (M6) to full externality conjunctural state

responsibility (M8). See that the knowledge based of the conjunctural state M4 no longer works at higher level conjunctural states such as M6 and M8.

B) The two step conjunctural state shift from deep environmentalism (M4) to yellow sustainability conjunctural state (M8) via the socio-environmental market conjunctural state (M7)

i) Analytically

The structure of the shift from deep environmentalism based conjunctural state optimality (M4) to yellow sustainability based conjunctural state optimality (M8) in two steps via socio-environmental market conjunctural state optimality (M7) is shown below:

I[a] I[b]

M4 = (0,0,1)----------→M7 = (1,0,1)----------→M8 = (1,1,1)

Independent Partially codependent Fully codependent

In the first step, when deep environmentalism conjunctural state (M4) internalizes the social externality I[a] it shifts to socio-environmental market conjunctural state (M7), a shift from an environment only conjunctural state market (M4) to a socio-environmental conjunctural state market or society and environment based partially codependent conjunctural state market (M7). In the second step, when the socio-environmental market conjunctural state (M7) internalize the economic externality I[b] it shifts to yellow sustainability based conjunctural state markets (M8), a shift from a society and environment conjunctural state market to a society, economy and environment conjunctural state market. See here, the first shift is from full independency based conjunctural state market to a partially codependent conjunctural state market, and then a shift from a partially codependent conjunctural state market to a fully codependent conjunctural state market. Hence, first there is a shift from a fully independent conjunctural state to a partially codependent conjunctural state; and then we have a shift from a partially codependent conjunctural state to a fully codependent conjunctural state. Notice that when at M7 we leave the knowledge base of conjunctural state M4 behind, and when at M8 we leave both the knowledge base of conjunctural state of M4 and of conjunctural state of M7 behind.

Implication 10:

The shift from the deep environmentalism conjunctural state (M4) to yellow sustainability conjunctural state (M8) is first a shift from environmental pareto conjunctural state optimality to socio-environment based conjunctural state pareto optimality, and then a shift from socio-environment based conjunctural pareto optimality to true sustainability based pareto optimality; and hence, it reflects a series of shifts towards higher level conjunctural state pareto optimality positions.

ii) Graphically

The two step shift from deep environmentalism conjunctural state (M4) to yellow sustainability conjunctural state (M8) via socio-environmental market conjunctural state (M7) can be stated graphically as done below:

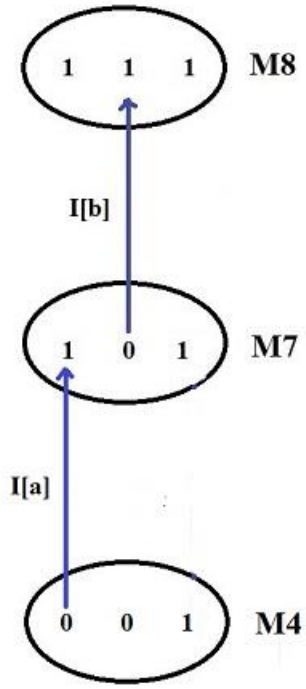

Figure 6 The two step conjunctural state shift from deep environmentalism to the yellow sustainability conjunctural state via the conjunctural state of socio-environmental markets

Implication 11:

The shift from deep environmentalism conjunctural state (M4) to yellow sustainability conjunctural state (M8) via socio-environmental market conjunctural state(M7) is a shift from lower level conjunctural state pareto optimality positions or lower conjunctural state responsibility positions to the highest level conjunctural state pareto optimality position or highest conjunctural state responsibility position, a shift from full externality based conjunctural state irresponsibility (M4) to partial externality based conjunctural state responsibility (M7) to full externality based conjunctural state responsibility (M8). Notice that the knowledge base of the conjunctural state of M8 and M7 would not work in a world under environmental optimality based conjunctural causality M4.

C) The one step conjunctural state shift from deep environmentalism conjunctural state (M4) to yellow sustainability conjunctural state (M8)

i) Analytically

The structure of the shift from deep environmentalism based conjunctural state optimality (M4) to yellow sustainability based conjunctural optimality (M8) in one step is indicated below:

I[ab]

M2 = (0,0,1)----------→M8 = (1,1,1)

Independent Fully codependent

In the first step, when the deep environmentalism conjunctural state (M4) internalizes the socio-economic externality I[ab] it shifts to yellow sustainability markets (M8), a shift from an environment only conjunctural state market (M4) to a society, economy and environment based conjunctural state market (M8), a shift from a full independency based conjunctural state market to a fully codependent based conjunctural state market. In other words, when the deep environmentalism conjunctural state (M4) internalizes social and economic externalities I[ab] it shifts to the yellow sustainability or true sustainability conjunctural state, a shift from environmentally based conjunctural Pareto optimality to socio-economy-environment based conjunctural Pareto optimality. Notice that at the conjunctural state point M8 the knowledge based of the conjunctural state M4 does not work due to paradigm shift knowledge gaps so the knowledge based of conjunctural state M4 is left behind.

Implication 12:

The shift from the deep environmentalism conjunctural state (M4) to yellow sustainability conjunctural state (M8) in one step is a shift from environmental pareto based conjunctural state optimality to socio-economic-environmental based conjunctural state pareto optimality; and hence, it reflects a shift to the highest level conjunctural pareto optimality position.

ii) Graphically

The one step shift from deep environmentalism conjunctural state (M4) to yellow sustainability conjunctural state (M8) can be indicated graphically as highlighted below:

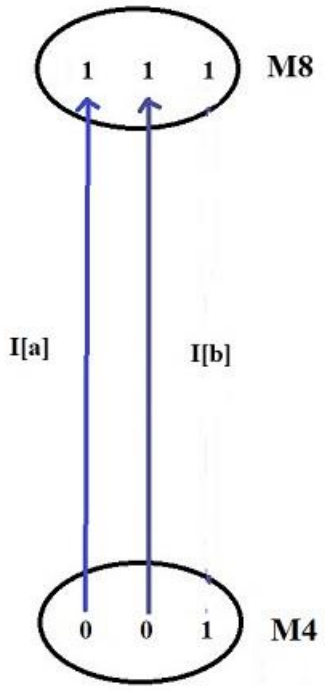

Figure 7 The one step conjunctural state shift from deep environmentalism to the conjunctural state of yellow sustainability

Implication 13:

The shift from the deep environmentalism conjunctural state (M4) to yellow sustainability conjunctural state (M8) is a shift from lower level conjunctural state pareto optimality positions or lower conjunctural state responsibility positions to the highest level conjunctural state pareto optimality position or highest conjunctural responsibility position, a shift from full externality based conjunctural irresponsibility (M4) to full externality based conjunctural state responsibility (M8). Notice that since the conjunctural state M8 is a higher level conjunctural state responsibility paradigm the knowledge base of the conjunctural state M4 would not work and it is left behind.

D) The all conjunctural state shift routes possible for deep environmentalism towards yellow sustainability graphically

We can place all conjunctural state shift routes in the same plane to visualize systematically that when we shift from lower level conjunctural state responsibility paradigm to higher level conjunctural state responsibility based paradigms this goes one to one with going from lower conjunctural state pareto optimality based paradigms to higher conjunctural state pareto optimality paradigms vertically while leaving the knowledge base of the previous paradigm behind as lower level conjunctural state pareto optimality knowledge no longer works in higher level conjunctural state optimality ones as shown below in Figure 8:

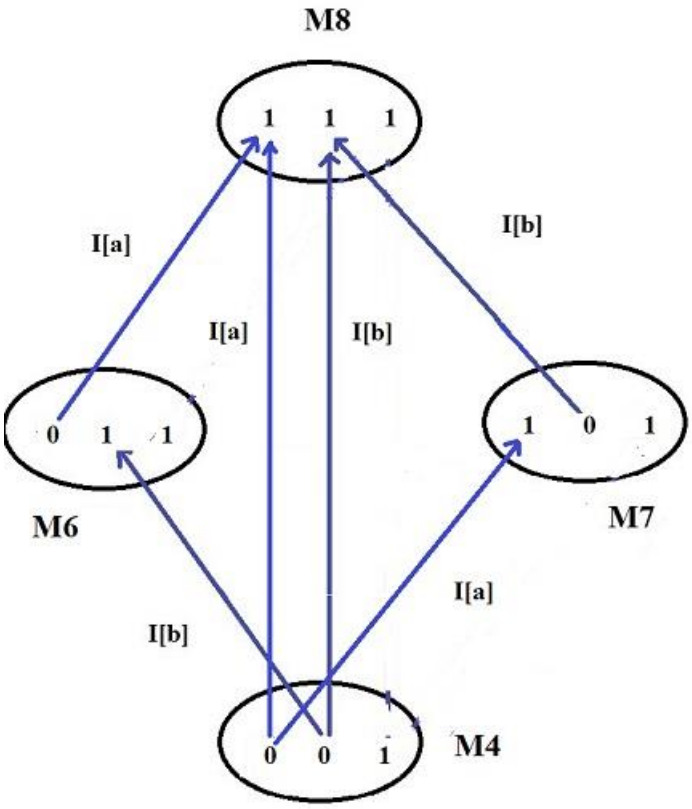

Figure 8 All the conjunctural state shift routes for deep environmentalism towards yellow sustainability showing vertical mobility as previous paradigm thinking is left behind when a shift takes place

Implication 14:

The conjunctural state Pareto optimality knowledge base of higher level conjunctural state optimality based paradigms does not work in lower levels conjunctural state optimality based ones; and the conjunctural state pareto optimality knowledge base of lower conjunctural state optimality based paradigms does not work in higher level conjunctural state optimality paradigms, and it is left behind when the paradigm shift takes place.

Specific implications

1) We can look at the evolution of deep environmentalism towards yellow sustainability in two ways, by looking at the variability of the model structure of deep environmentalism as component internalization takes place; and by looking at variability of the conjunctural state of deep environmentalism as optimality internalization takes place; 2) When looked from the component variability point of view, the model of deep environmentalism has 3 evolution routes towards the model of true sustainability market or yellow sustainability market, a two step route via green market models, a two step route via socio-environmental market models, and one direct

route from deep environmentalism markets to yellow sustainability markets. In all cases the knowledge based of the deep environmentalism model is left behind when paradigm shift takes place; and 3) When looked from the conjunctural state variability point of view, the conjunctural state of deep environmentalism has 3 evolution routes towards the conjunctural state of true sustainability market or the conjunctural state of yellow sustainability market, a two step route via green market conjunctural states, a two step route via socio-environmental market conjunctural states, and one direct route from deep environmentalism market conjunctural state to yellow sustainability market conjunctural states. In all cases the knowledge based of the deep environmentalism conjunctural state is left behind when paradigm shift takes place and the core value of environmental responsibility is saved/retained in each vertical evolutionary stage.

General implication

It is possible to think about Pareto optimality in ways that makes traditional Pareto optimality thinking a component specific case of Pareto optimality thinking, making conjunctural Pareto optimality thinking a useful way to extend optimality thinking to worlds beyond traditional market thinking, in this case, it is extended to frame deep environmental pareto optimality thinking, green market based pareto optimality thinking, socio-environmental market based pareto optimality thinking and true sustainability based pareto optimality thinking . And this means, traditional Pareto optimality thinking only works within economy only markets; and hence, it is economy component specific (Muñoz 2025a). And therefore, if we shift to any form of conjunctural Pareto optimality thinking, in this case, if we shift to deep environmentally based pareto optimality thinking, then traditional Pareto optimality thinking is left behind as it no longer works when the shift in optimality thinking takes place (Muñoz 2025b). Just recently it was shown in model variability terms and conjunctural variability terms i) that when we shift to deep socialism based pareto optimality thinking(Muñoz 2025c), then traditional pareto optimality thinking does not work; ii) than when we shift step by step or in one step from deep socialism vertical its knowledge based is left behind; and iii) that at every evolutionary stage vertically the core value of social responsibility is saved/maintained.

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