



Is Deglobalization An Opportunity Or A Threat? A Two-Dimensional Investigation

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Abstract: Deglobalization is being accelerated through a combination of protectionism, countries having 'friend shoring' which means limiting trade to countries with shared values, invasion of enemy countries (Ukraine-Russia war) which leads to geo-strategically motivated bans and sanctions. This research paper focuses on two-dimensions where deglobalization can highly impact. The first dimension is threat to climate and the second dimension is fulfilled by testing Romer's hypothesis which states that inflation is lower in open economies. The aim of the second dimension is to check causal relationship between trade openness and inflation, taking Wholesale Price Index as the variable. The researchers also checked any long run or short run relationship between the two variables. Methodological tools include test stationarity of the data, Granger Causality Test Johansen Cointegration Test taking secondary empirical data of past 10 years. The inferences drawn are not supporting the idea of a closed economy or a global economy with isolated regional trading blocs.

Background:

The idea behind globalization has always been to integrate the economies through increasing volume and cross border transactions in goods and services and of international capital flows(1). A truly global corporation views the entire world as a single market. The period of 1990s could be considered as the initiation of interdependency among countries and further reached to exhaustion period which named as hyperglobalization(2). The decade of 'the Great Recession' was an epic financial and global economic collapse (3). The historical period of 2007-2008 showed a slowdown in interconnectedness among countries(4). If we look at the world trade web considering exports and imports as major variables, the web could be seen having very less density giving a picture of various dots (as countries) having minimal links or relationship with each other. This was a topological perception of seeing the connectivity among countries from an extremely broader lens also understood as a top-down approach in general.

After this period, the term "Slowbalisation" became prominent among academicians(5). Slowbalisation meant a gradual downward trend in global trade volume occurred due to lesser cross border trade, declining financial openness and limiting interdependencies. There can be other factors as well but European Parliamentary Research Services traced five pathways of slowbalisation, namely slowing down of cross border trade in goods and services, slowing down of open and globalized financial system, deepening income inequality, lesser international physical interaction which majorly includes tourism and migration and the last pathway as movement of data and digital exchanges(6). When these factors reach to a point of an extremely closed global economy, the situation can be understood as Deglobalization. The term deglobalization can also be understood as an antonym for Globalization, as globalization has been associated not only with an increasing cross border movement of goods, services, capital, technology, information and people, but also with an organization of economic activities which straddles national boundaries. Thus, it can be said that the fundamental attribute of globalization is the increasing degree of openness. Whereas, Deglobalization is directly related to decreasing trade openness. An empirical measure of trade openness can be defined as the ratio of total trade to GDP of the country(7). In other words, Trade Openness measures the extent to which a country is engaged in the global trading system, however there are other indicators as well which measures

trade intensity. Conceptually, trade openness may be defined as the degree to which an economy maintains its outward orientation in trade(8). The ratio indicates the strength of the forces that integrate the domestic market with external markets. An economy having high ratio of trade openness can be considered as a globalized economy. In the last few years this indicator have not been showing good numbers reflecting lesser connected world(9). The researcher here attempts to see if deglobalization or quantitatively, low trade openness can significantly cause high inflation.

After the Great Recession, the second extraordinary global pandemic Covid-19 put the global trade into a dilemma where countries were dependent on each other for pharmaceutical needs and at the same time a degree of lesser connectivity and decline in economic activity, due to social distancing practices, government-mandated lockdowns and other mobility restrictions could be also be seen(10). Empirical data shows that the world trade fell abruptly(11). The cumulated number of trade restrictive measures got increased to historically high levels among the G20. The European Commission has also reported a record high number of protectionist barriers to trade around the world, reflecting a wider shift from liberal to managed trade. This shift from hyperglobalised to a sudden slowdown in international trade pushed the global connectivity towards deglobalization. The ongoing Russia-Ukraine war also significantly impacted international trade and thus can be considered as a good contributor in deglobalization of world trade. In this paper the researcher tries to unfold a different aspect of deglobalization which is threat to climate. Existing literature says that a deglobalized world would lead to centralized distribution and further can cause disbalance in extraction of natural resources.

In this paper, the researcher strives to investigate two dimensions of deglobalization. The objective is to review the impact of deglobalization on Global climate crisis and the second one is to test Romer's hypothesis(1993) which states that there is a negative relationship between Trade Openness and Inflation.

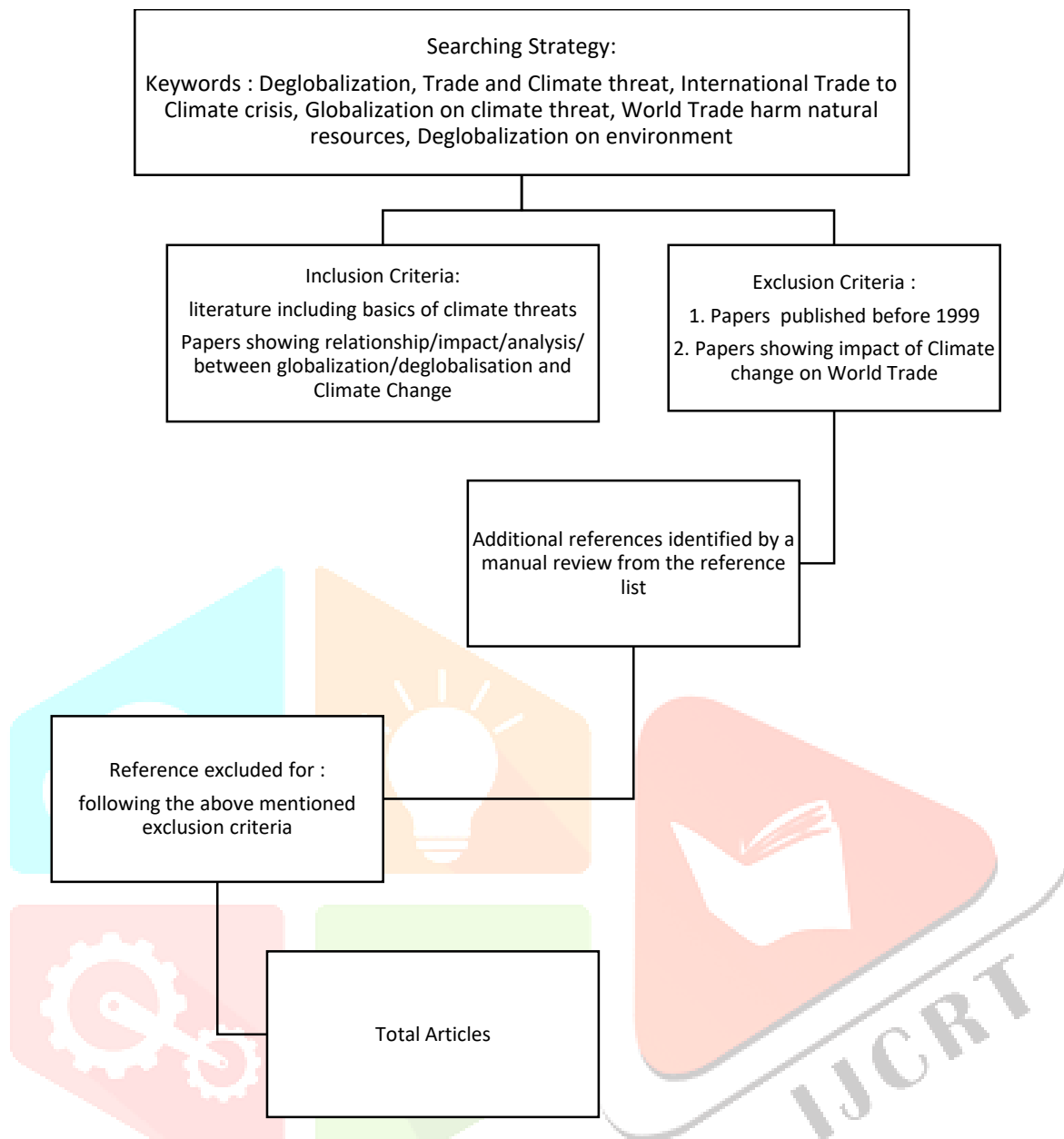
Research Methodology

There are two layers of the execution of the research objectives. To fulfill the first one which is to review the impact of deglobalization on global climate crisis, a narrative review analysis has been done. To test Romer's hypothesis, the following sequence of econometric scrutinization has been performed taking financial year 2000-2022 as duration of the study:

1. Regression Analysis
2. Augmented Dickey Fuller Unit Root Test
3. Granger Causality Test
4. Johansen Cointegration Test

The detailed research method has been discussed below:

Design of Narrative Review



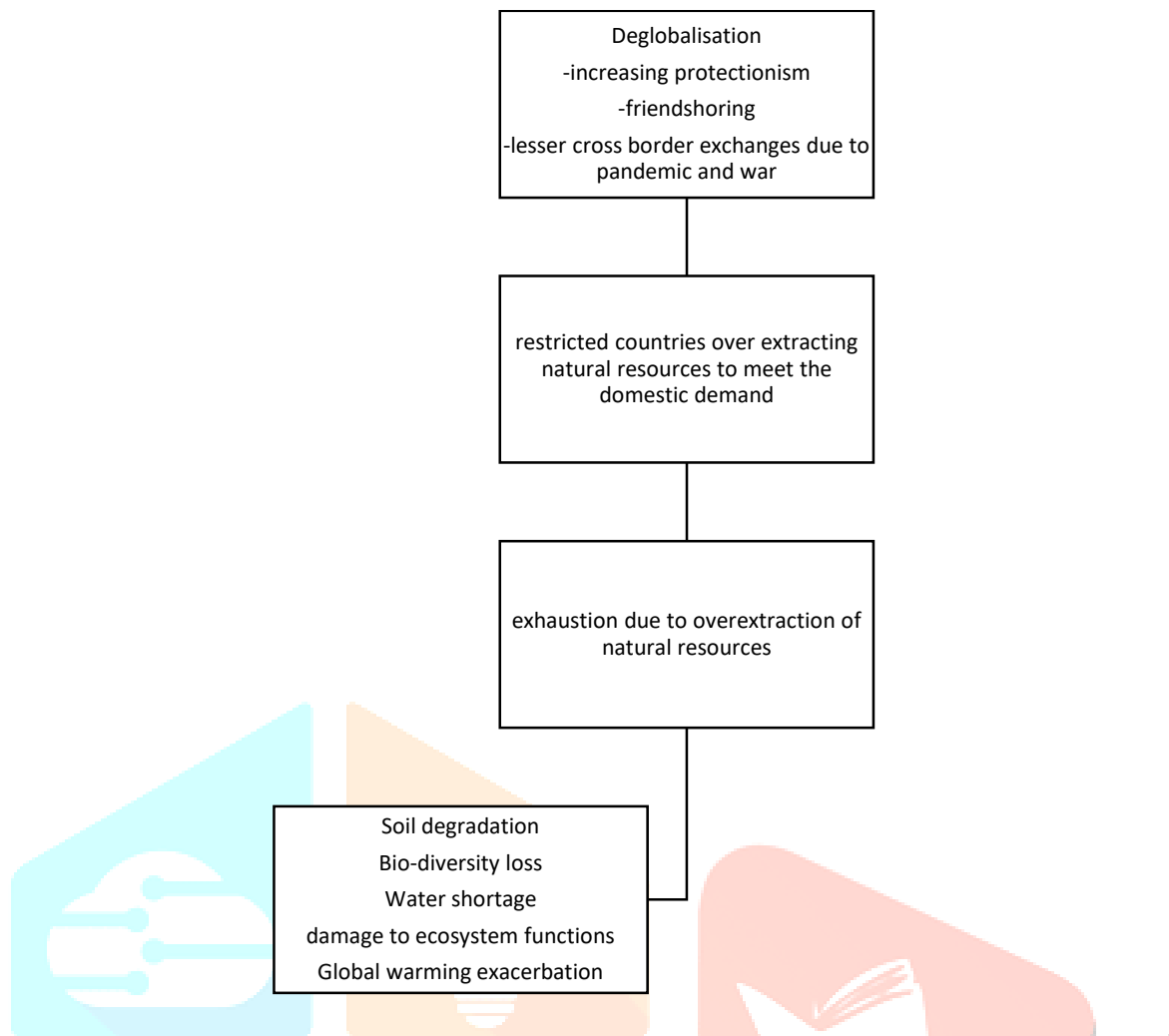
Analysis and interpretation

Dimension 1: review the impact of deglobalization on Global climate crisis

To review the impact of a lesser connected world on climate change, the initial step was to see the existence of relationship between trade and climate change. A good knowledge of types of climate threats also acted as a foundation for the analysis. As, globalization is all about exchange of goods and services across borders, deglobalization have been seen as a sharp decline in foreign relations. This decline also includes friend-shoring among regional trading blocks which means limiting trade to countries with shared values and increasing protectionism with other countries. According to United Nations, climate change refers to long term shifts in temperatures and weather patterns. There are three categories of climate action which can be put in the following sequence:

1. Mitigation
2. Adaptation
3. Migration

Here, climate change mitigation refers to efforts to reduce or prevent emission of greenhouse gases and Adaptation means responding to climate impacts. The sequence of these three actions is crucial as, the challenges implied by each category will become more difficult if enough efforts are not being done in the category preceding it. If the efforts will be less on mitigation, we will need more adaptation, and consequently, more climate refugees will be seen. The problem occurred due to increasing trend of deglobalization of trade can be understood through following flow chart:



Yunfeng, Y., & Laike, Y. (2010) in their paper 'China's foreign trade and climate change: A case study of CO₂ emissions' found that the effects of trade globalization on the environment are extensive. By shifting the environmental pollution caused by their consumption to other nations through trade, consumers can reduce their own environmental impact. Leakage of carbon has a significant impact on world trade and the economy. The study calculates the amount of carbon dioxide (CO₂) embedded in China's international commerce from 1997 to 2007 using an input-output technique. The manufacturing of items for export to foreign customers is determined to contribute 10.03–26.54 percent of China's yearly CO₂ emissions, although imports only account for 4.4–9.5 percent of that (between 1997 and 2007). Additionally, they predict that in 1997, the rest of the globe did not release 150.18 Mt CO₂, and that number rose to 593 Mt in 2007.

There are more studies being done on the impact of commerce on CO₂ emissions globally. For instance, Wyckoff and Roop (1994) discovered that, between 1984 and 1986, imported manufactured goods were responsible for, on average, 13% of the total CO₂ emissions of the six major OECD nations. Ahmad and Wyckoff (2003) assessed the CO₂ emissions associated with 24 countries' international trade in products and investigated the effects of trade-driven industry relocation on overall emissions. Peters and Hertwich (2008) calculated the CO₂ emissions associated with commerce among 87 nations in 2001. They discovered that CO₂ emissions from commerce total more than 5.3 Gt worldwide and that Annex B nations are net importers of CO₂ emissions. Nakano et al. (2009) investigated the problem for 41 countries/regions by 17 industries utilizing internationally comparable OECD data sources. According to their findings, there were "trade deficits" in CO₂ emissions in 21 OECD nations at the very beginning of the 2000s, and in 16 of those countries, the size of the trade imbalance grew in the late 1990s. In addition, a number of studies have used input-output analysis to calculate the emissions embodied in global trade using a single-country framework, including Machado et al. (2001) for Brazil, Mongelli et al. (2006) for Italy, Peters & Hertwich (2006) for Norway, Kander and Lindmark (2006) for Sweden, and Weber & Matthews (2007) for the United States.

Antweiler, W., Copeland, B. R., & Taylor and M. S. (2001) in their paper named 'Is free trade good for the environment' examined the relationship between pollutant concentrations and market access to global marketplaces for commodities. They created a theoretical model to separate the impacts of scale, method, and

composition on trade's influence on pollution, and they tested this idea using data on sulfur dioxide concentrations. They discovered that when the mix of national production is altered by trade, very little variations in pollutant concentrations result. In accordance with estimates of the trade-induced size and technique impacts, pollution from these sources has decreased overall. Their estimates of all three impacts are combined, and the result was a somewhat unexpected finding: free trade seems to be good for the environment.

Dimension 2: to test Romer's hypothesis which states that there is a negative relationship between Trade Openness and Inflation.

Hardly any economist has considered the fact that the genesis of this hypothesis has come from Vaubel (1990) where he thoroughly discussed how foreign currency unification can ultimately lead to reduction of inflation rates. He analyzed that economies prefer currency stabilization whenever there is a need of currency reform and at the end countries end up with currency unification to make it a beneficial currency reform. Taking European economies as the focal point, Vaubel initiated the argument of inflation and open economies. Romer(1993) extends the argument, however, he did not take the foreign exchange rate or currency unification or stabilisation as the variable but took trade openness and further gave birth to this debatable argument. The reason of considering this hypothesis as debatable is that after 1993 many researchers justified the relationship between trade openness and inflation as a positive one(12). On contrary, many prominent economists also found a negative relationship between the two variables (8). Though Romer mentions that Vaubel also debated the same, but it is widely considered that it is Romer who studied the correlation among the two taking trade openness and inflation as variables whereas Vaubel studied about currency stabilization. In his seminal study, Romer tested and demonstrated that average rates of inflation were lower in small and open economies. It is also noticeable that he found no relationship between openness and inflation in highly developed economies, however this exception holds for a few small highly developed nations. By taking cross-section data of 114 countries Romer justified statistically significant and robust inferences. He concluded with a negative relationship between inflation rate and trade openness. Various studies have tested Romer's hypothesis of trade openness and inflation in several ways. Evident literature can be found supporting Romer's results.

The empirical findings of Lane (1997), Bleaney (1999), Ashra (2002), Sachsida et al. (2003), Yanikkaya (2003), Gruben and Mcleod (2004), Kim and Beladi (2004), Aisen et al. (2005), Daniels et al.(2005), Razin and Loungani (2005), Bowdler and Malik (2006) Aron and Muellbauer (2007), Granato et al. (2007) Badinger (2007), Bowdler and Nunziata (2006), Sikdar et al. (2013), Lin et al. (2017) all validate Romer's argument. In the previous section, we discussed the threat to climate change caused by lesser connectivity among the nations. In this section, the quantitative aspect of the paper would be covered. There have been several indices and parameters which give a concrete picture of world trade which researchers used as a measurement of globalization as well. Measuring Deglobalization has always been a challenge. The most common way to find world trade is to half the sum of world exports and world imports. But there never been a significant formula which could give a figure of deglobalization. Contemporary economic research (14) postulates that the process of deglobalization can be best highlighted by watching at least three main economic flows, such as: Dynamics of imports and exports of goods and services at a global or regional level, as an expression of international commerce, Dynamics of expats' money remittance and Inflows and outflows brought by foreign direct and portfolio investments. However, these measures could never give a concrete picture of deglobalization.

Result of ADF Unit root test

The standard practice of execution of time-series analysis starts with the testing of stationarity. In this paper, the Augmented Dicky Fuller (ADF) Test has been used to execute Unit Root test. To conduct the test E-views 12 version software has been used taking Schwarz Information Criterion (SIC) as small numbers of observation are there. Table no. 1 shows the data taken from the World Bank official website. Table no. 2 shows the result of ADF Unit Root test at level the p values of Trade Openness and WPI.

H_{01} : Trade Openness has Unit Root.

H_{02} : WPI has Unit Root.

As the p value is 0.31 which is greater than 0.05 Thus, the researcher accepts the null hypothesis and infer that the data is not stationary at level. It is required to test the stationarity at first difference. The results of stationarity at first difference are also mentioned in Table 1 where p value of Trade Openness is 0.01 which confirms it to be stationary, however, p value of WPI is 0.21 is greater than 0.05 thus we can say that even at first difference WPI is not stationary. Thus, we took the log values of both the datasets.

H₀₃: lnTrade Openness has Unit Root

| Variable | Level p value | First difference p value |
|----------------|---------------|--------------------------|
| Trade Openness | 0.31 | 0.01 |
| WPI | 0.98 | 0.21 |

H₀₄: lnWPI has Unit Root

| 1st difference values after log | |
|---------------------------------|----------|
| lnTrade | lnWPI |
| -0.01491 | 0.021845 |
| 0.055089 | 0.010612 |
| 0.015665 | 0.022526 |
| 0.088461 | 0.027783 |
| 0.049191 | 0.017884 |
| 0.036882 | 0.024599 |
| -0.00036 | 0.021145 |
| 0.067497 | 0.036458 |
| -0.06196 | 0.010109 |
| 0.027126 | 0.039657 |
| 0.052809 | 0.039297 |
| 0.001324 | 0.030637 |
| -0.01545 | 0.022899 |
| -0.04163 | 0.014325 |
| -0.06705 | -0.01723 |
| -0.0195 | -0.00023 |
| 0.007093 | 0.014681 |
| 0.029608 | 0.018144 |
| -0.038 | 0.008109 |
| -0.0241 | 0.002323 |
| 0.062701 | 0.077373 |

Table 1

Result of Granger Causality Test:

H₀ : lnTrade does not Granger Cause lnWPI : p value = 0.98

H₀₁: lnWPI does not Granger Cause lnTrade: p value = 0.30

As in both the cases. p value is greater than 0.05, we accept the null hypothesis that Trade Openness does not Granger Causes WPI.

Result of Johansen Cointegration Test

H₀: There is no Cointegration between Trade Openness and WPI

If trace Statistic is greater than Critical Value we reject the H₀

| | Trade Openness | WPI |
|------|----------------|----------|
| 2000 | 26.90092 | 58.53045 |
| 2001 | 25.99325 | 61.54985 |
| 2002 | 29.50866 | 63.07232 |
| 2003 | 30.59244 | 66.43005 |
| 2004 | 37.50381 | 70.81872 |
| 2005 | 42.00167 | 73.79582 |
| 2006 | 45.72448 | 78.09637 |
| 2007 | 45.68627 | 81.99286 |
| 2008 | 53.36822 | 89.17311 |
| 2009 | 46.27287 | 91.27305 |
| 2010 | 49.25521 | 100 |
| 2011 | 55.62388 | 109.4706 |
| 2012 | 55.79372 | 117.472 |
| 2013 | 53.84413 | 123.8322 |
| 2014 | 48.92219 | 127.9847 |
| 2015 | 41.92291 | 123.0054 |
| 2016 | 40.08249 | 122.9404 |
| 2017 | 40.7425 | 127.1672 |
| 2018 | 43.61697 | 132.5924 |
| 2019 | 39.96253 | 135.0913 |
| 2020 | 37.80535 | 135.8159 |
| 2021 | 43.67717 | 162.3018 |

| | Trade Statistic | 0.05 Critical Value |
|-----------|-----------------|---------------------|
| None | 18.20413 | 25.87211 |
| At most 1 | 3.244563 | 12.51798 |

As trace statistic is not greater than 0.05 Critical Value, We accept the H₀, and we infer that there is no cointegration of long run relationship between Trade Openness and WPI. Based on Granger Causality test and Johansen Cointegration test, we reject Romer's Hypothesis which says that more an economy will be open, the inflation will be lesser. But at the same time, beta value of Inflation coefficient gives a signal that indeed there is a significant role of Trade Openness in inflation. Though Deglobalization has a mixed impact, with the support of existing literature, the researcher would not support the idea of a closed economy or isolated regional trading blocs.

To conclude, in this research paper, I have tried to reflect upon the consequences of Deglobalization. The first dimension was to review the impact of deglobalization on Global climate crisis and the second dimension was to test Romer's hypothesis (1993) which states that there is a negative relationship between Trade Openness and Inflation. The starting point in reviewing the effects of a less interconnected world on climate change was to determine if trade and climate change were related. The study was also built on a solid understanding of the many climate hazards. Deglobalization has been seen as a dramatic deterioration in international relations because globalization is all about cross-border trade of commodities and services. Friend-shoring within regional economic blocs, which involves restricting trade to nations with similar values and escalating

protectionism with other nations, is another factor contributing to this drop. The overall inference of the second dimension does not support the idea of closed economy.

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