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**Climate change in Brazilian media**

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**1. Introduction**

Brazil's contribution to global greenhouse gas emissions (mainly via deforestation), the importance of the Amazon as a carbon sink and "controlling agent" of several meteorological processes, and, according to global surveys, the population's unusually high awareness of climate change make the country of great interest in the study of climate change communication. Brazil is also home to some of the world's largest stocks of biodiversity and of fresh water, as well as a major hydropower and ethanol producer (which have their own – in some cases massive – environmental impacts).

Given a widespread dependence on natural resources and profound social inequalities, Latin America is quite vulnerable to the impacts of climate change. In Brazil, this is aggravated by issues such as demographic pressure, disorganized urban sprawl, and poor governance situation (Painel Brasileiro de Mudanças Climáticas - PBMC, 2013). The country has undergone rapid transformations, with large-scale economic and social improvements in the first decade of the 21st century followed by a significant decline in the last few years. Politically, the country's fragile democracy has also seen recent dramatic challenges.

In these complex contexts, analysing the ways in which Brazilian media construct and revise the meanings of climate change is of crucial importance. This chapter will start by providing contextual information on Brazil, then examine public perceptions of climate change and the Brazilian media system, discuss research on media coverage and finally identify gaps and future research opportunities.

## **Climate Change and Climate Politics in Brazil**

A significant contribution to the greenhouse effect, severe (projected) impacts, high vulnerability and erratic policies (especially in the last few years) are key traits of Brazil's climate-related situation, as we will discuss below.

It is well known that most developing countries are badly exposed to the consequences of climate change (IPCC, 2014). They are likely to bear the brunt of climate impacts and the vast majority of the cost of associated loss and damage. Forecasts for Latin American point, inter alia, to the disappearance of the Andean glaciers, a crucial source of water (and hydropower generation) for many millions of people, and the destruction of the Amazon forest and subsequent transformation into a savannah-type landscape, which would lead to further changes in the region's climate and possibly the whole world's. With limited technical and financial capacity to respond to climate change effects, most Latin American countries have a low degree of resilience (Vergara et al., 2013).

Due to its continental dimensions, Brazil has a great diversity of climatic regimes and influences on its climate, which hinders the acquisition of series of observational data in extended periods. Existing data indicates a significant reduction of rainfall in much of the Centre, North and Northeast of Brazil, whereas in the South and Southeast episodes of very heavy rainfall have increased in the last 50 years. Climatic models suggest that the frequency of occurrence of extreme and prolonged droughts will rise in the future (especially in the Amazon, Cerrado and Caatinga biomes). Projections also point to a warmer future due both to greenhouse gas emissions and to regional processes such as urbanization and deforestation (PBMC, 2013).

While forecasts point to severe impacts of climate change across the country, a number of factors increase vulnerability. According to the Brazilian Panel for Climate Change (PBMC, 2013) demographic pressure, disorderly urban growth, poverty and rural migration, low investment in infrastructure and services, and governance issues all contribute to increase the country's vulnerability. High concentration of population in urban areas puts most Brazilian cities at further risk in relation to the effects of climate change (PBMC, 2013).

Brazil is the world's seventh highest emitter of greenhouse gas emissions (Friedrich, De & Damassa, 2015), mostly due to deforestation. In the last few decades, a number of measures have been put in place to check for forest loss in the Amazon, such as satellite monitoring. Environmental legislation adopted further to the 1992 United Nations

Conference on Environment and Development (UNCED; also known as Earth Summit or Rio 92) is progressive, although its implementation leaves much to be desired. In the year 2000, the National Climate Change Forum was created with the aim of raising awareness and public engagement. Examining the period 1989-2003, Viola (2004, n.p.) noted that Brazil moved from a “more nationalist toward a more liberal and globalist standing” in international climate politics. In subsequent years it often played a leading role and acted as a bridge between developed and developing countries in international negotiations.

The National Policy on Climate Change (Política Nacional sobre Mudança do Clima) and the Brazilian Panel on Climate Change (PMBC) were established in 2009 and the government made a voluntary commitment to reduce deforestation by 80% until 2020. Policies in the domains of conservation and energy, amongst others, started taking climate change into account. Official efforts also include augmenting reforestation and protected areas, as well as enhancing efficiency in the cycle of ethanol (a widely used biofuel), developing seeds with more resistance to climate variability and technologies to capture methane in hydroelectric reservoirs. Research carried out by the Instituto Nacional de Pesquisas Espaciais (Inpe) and the Instituto de Pesquisas Amazônicas (Inpa) in studying and promoting climate change mitigation and adaptation were also positive developments. Until 2014, the country made remarkable progress in the reduction of deforestation, which was pushed by the action of non-governmental organizations and of political figures like Marina Silva with subsequent governmental commitment (Viola, 2013). For this, Brazil received praise as an international leader in reducing emissions (Howard, 2014).

Despite those notable developments, national climate politics has long been marred by conflicting policy decisions and significant delays in the execution of plans. Overall, much remains to be done. Mitigation potentials in the sectors of transport, energy-generation, industry, agriculture and livestock remain underexplored. A chronic scarcity of funds to keep forests standing and reduce emissions has reduced intervention to market-based mechanisms, such as REDD (Reducing Emissions from Deforestation and Forest Degradation), whereby richer countries buy emissions credits from Brazil (Börner et al., 2010). Another weak point is the lack of regional and local policies for climate change in most Brazilian states, both in terms of mitigation and adaptation, which would be crucial to enact actions in the locales where greenhouse gas emissions are produced and where climate change impacts are being felt.

Economic recession and political turmoil in the last few years have cast further shadows on the country's role in climate politics. Conservation-oriented policies have been

weakened, through, among other aspects, the loosening of the Forest Code (which regulates how Brazilian native vegetation can be explored) and cuts made in the areas of inspection and monitoring. Despite signing the Paris Agreement, Brazil has adopted measures that are at odds with climate protection after it came into force, such as changes to regulations in oil exploration conducive to faster and larger extraction (Angelo, 2016). Recent records offer a dismal picture. According to the Greenhouse Gas Emissions Estimation System of Observatório do Clima (Climate Observatory), Brazilian greenhouse gas emissions had an annual increase of 3.5% in 2015 despite the country's GDP falling by 3.8% (Observatório do Clima, 2016). The rise in emissions was mainly due to the increase in deforestation, which grew 24% in 2015 compared to the previous year. The Instituto Nacional de Pesquisas Espaciais (2016), a federal government agency that runs a deforestation monitoring project, estimated a 29% annual increase in the rate of deforestation in 2016.

### **Public Perceptions of Climate Change**

In a six-country study conducted by Gallup in 1992 (the year of Rio's Earth Summit), the Brazilian public stood out (together with the Portuguese) in considering global warming a very serious issue: 71% of respondents compared with 41% in Russia and 47% in the USA (Dunlap, 1998). By 2007, the Pew Research Center found that 88% of respondents in Brazil considered global warming a very serious problem, the highest percentage of all 47 countries polled in multiple world regions. That trend was observed again in 2015 (Pew Research Center, 2015) with 86% of Brazilians rating climate change as very serious, again the highest percentage among the polled countries. Brazilians (90%) were also "the most likely to believe that climate change is harming people now." (p. 16). They expressed very high support for national action towards limiting emissions (88%) and were most likely to endorse "modifications in the way they live to better cope with global warming" (89%) (p. 29).

In contrast with the Gallup and Pew surveys, surveys run by the Brazilian Environment Ministry (Ministério do Meio Ambiente, 2012) show that the environment was not perceived as one of Brazil's top ten problems in 1992, 1997, 2001 and 2006. It only came to that position in the 2012 survey (coincidentally Rio+20 took place in 2012, giving rise to a new wave of media coverage of the environment). When asked, in 2012, to rank the world's most important environmental problems Brazilians answered in the following order: deforestation; pollution of rivers, lakes and other sources of water; air pollution; increasing waste; ozone layer; waste of water and energy in cities; ocean pollution; and, in eighth position, climate

change, with only 10% of the answers (down from 43% in 2006). Climate change appeared in responses to this poll as one of Brazil's main environmental problems (6% of answers) for the first time. Compared to the Gallup and Pew survey data, these results suggest that different questions lead to different images of the importance of climate change for the public. It is therefore important to ask and cross-compare diverse sets of questions. In any case, the Brazilian Environment Ministry data also indicates that there has been a rising awareness of and engagement with the environment, with significantly higher percentages of people expressing readiness to act on environmental issues in 2012 than in previous years.

### **The Brazilian Media System**

The Brazilian media system is “television-centered” (Albuquerque, 2012, p.78). 77% of the population watches television daily (Secretaria da Comunicação Social da Presidência da República, 2016) and the small set occupies a key place in the country's culture and society. It is by far the most widely used source of information. 50% of Brazilians use the internet daily (a 15% increase in relation to 2015) and radio is the third most popular media (30% daily use). Brazilian newspapers have a very low rate of circulation (8% daily readership) and are “addressed to a small urban elite” (Albuquerque, 2012, p.78). Most of the press in Brazil is regional, although some newspapers are viewed as particularly influential at the national level, including *Folha de São Paulo*, *O Estado de S. Paulo* and *O Globo* (based in Rio de Janeiro, part of the Globo Group). Worth mentioning is also the news magazine *Veja*, with the highest sales rate, and others, such as *Isto É*, *Época* and *Carta Capital*.

Brazilian broadcasting media are (and have always been) almost exclusively private. Rede Globo is the biggest television network and part of the Globo Group, Latin America's largest media conglomerate. SBT, Record and Bandeirantes are other big players in the television business, which belong to multimedia groups owned by powerful families or – in the case of Record – an evangelical church.

Media oligopolization has significant political implications especially given the strong connections between corporate power and political power in Brazil (e.g. Fonseca, 2010). At the same time, the country also has a lively alternative media scene with multiple – but low scale – initiatives to produce independent information (Oliveira, 2011). However, a past record of authoritarian politics (without press freedom for long periods), various types of pressures and multiple insecurities, including physical attacks and murders, obstruct the

exercise of journalism in Brazil, which Reporters without Borders have ranked in the 104<sup>th</sup> position in its 2016 World Press Freedom Index.

The Brazilian press has a predominant right wing orientation. Although most media have a “market driven, catch-all attitude” and “distance themselves from particular political groups” (Albuquerque 2012, p.81), there are multiple signs that Brazilian media predominantly favour neoliberal views.

### **Media (Re)constructions of Climate Change**

The emergence of environmental journalism in Brazil is tied to both national and international developments. Following international events and tendencies, coverage of environmental matters first rose in the Brazilian media in the early 1970s (Girardi, Moraes & Loose, 2012). Costa (2006) found that attention to the environment and especially the Amazon intensified in the late 1980s in the main newspapers and news magazines. The dissemination of the first satellite images showing huge numbers of forest fires and the depletion of the Amazon forest, the assassination of rubber tapper and environmentalist Chico Mendes, and the emergence of climate change in international political and media arenas were among the factors fuelling media interest. Rio 92, the landmark UN summit where the United Nations Framework Convention on Climate Change was agreed and the Convention on Biological Diversity was signed, offered a critical opportunity for media analysis of environmental issues and further pushed them into news agendas. Research on environment and the media was relatively slow to develop and is not as extensive as in other countries/regions. Nonetheless, a number of works on the coverage of climate change published over the last decade or so allow for the identification of various trends.

#### *Reflecting International Agendas and Foreign Voices*

Various studies indicate that news coverage of climate change in Brazil is strongly influenced by international factors. In one of the first analyses, Fioravanti (2007) showed that between the second half of 2006 and the first half of 2007 the number of news stories in *Folha de São Paulo* increased four-fold, which he associated with events such as the launch of the various IPCC's Working Group reports and a G8 meeting. There was little focus on Brazil with attention being instead turned to consequences of climate change around the

world. According to Fioravanti (2007), the newspaper climate change reporting displayed a strong dependency on international news agencies.

The broadest empirical analysis of Brazilian media coverage of climate change was carried out by ANDI, a civil society organization focusing on media, development and young people's rights, which analysed 50 newspapers between 2005 and 2008 (Vivarta, 2010). Looking at coverage from July 2005 to June 2007 and July 2007 to December 2008, they identified fluctuations in media attention that they tied to international events. More specifically, they observed that the number of articles started rising at the end of 2006 with the publication of the Stern Report and the opening of Al Gore's documentary *An Inconvenient Truth*, and increased further in 2007 with the publication of the IPCC's Working Group reports and the awarding of the Nobel Peace Prize to Al Gore and the IPCC in 2007. Despite these general trends, the volume of references to national matters grew between the two (consecutive) periods that they analysed, which they attributed to a change in the Brazilian's government stance in relation to climate change and energy (from refusal to acceptance of emissions reduction commitments) (see also Broadbent et al., 2016).

Subsequent research corroborated that the Brazilian press tends to reproduce international agendas. Compared with newspapers from the USA, Argentina and Colombia, Zamith, Pinto & Villar (2015) pointed to "*Folha de São Paulo* having the greatest proportion of international stories (69.9%)" on climate change in 2009. This tendency also appears to extend to more localized, less "cosmopolitan" newspapers. Loose (2016) found a prevalence of foreign actors in reports of regional newspaper *Gazeta do Povo* (Paraná state) in 2013.

### *Privileging Official Sources*

In his analysis of two leading newspapers' coverage of the Rio 92 summit, Reis (1999) found that more than 50% of sources cited were either politicians or officials (scientists and environmentalists corresponded to 5-8% each). Costa's (2006) research in the main Brazilian newspapers and news magazines between 1975 and 2002 (mainly focused on deforestation and forest burning) confirmed the prime position of governmental sources throughout three decades, followed by research-related sources and NGOs, especially foreign/international ones in both cases. In contrast, says Costa, "smallhold farmers, landowners, indians, loggers and their respective representation bodies appeared in secondary positions (...) either as villains or as victims of the marked deforestation and forest burning processes in the Amazon" (p. 53) (our translation).

In ANDI's study, national, foreign and international governmental sources taken together, amount to 35.6% of sources cited in 2005-2007 and 37.2% in 2007-2008 (Vivarta, 2010, p. 43). Based on several indicators, they concluded that "coverage tends to be presented to readers from the government's outlook" (p. 53) (our translation). Rodas and Di Giulio's recent analysis (2017) of coverage of climate change and energy issues in *Folha de São Paulo* for a decade and a half (2000-2014) confirmed the prominence of governmental sources, which they associated with a news focus on political decisions and on disputes staged in international meetings on climate change.

Contrasting with the press, one of the very few studies of television representations of climate change, which looked at Globo's *Fantástico* show (an infotainment programme), found that scientists were the most widely present sources, followed by members of the public and government representatives (Scalfi, Massarani, Ramalho & Amorim, 2013).

### *Following the Scientific Consensus*

Brazilian media's focus on the scientific consensus on climate change, as represented by the IPCC, has been pointed out in various studies. ANDI's extensive study showed that the consensus view was dominant and that the vast majority of news stories referred to the link between climate change and human activity: 59.4% in 2005-2007 and 63.9% in 2007-2008 (Vivarta, 2010, p. 41). Painter and Ashe (2012) found that climate scepticism was almost non-existent in the Brazilian press, which featured the lowest percentage of six countries (Brazil, China, France, India, UK, and US).

In a more recent study, Dayrell and Urry (2015) examined a corpus of nearly 20 000 news texts published in 12 daily newspapers between 2003 and 2013 with corpus linguistic techniques. They reported finding "little evidence of climate change scepticism over the previous decade. (...) Overall, the mainstream Brazilian media adopted, organized and mobilized a gradualist discourse." (p. 269). The "gradualist" view would be the one represented by the IPCC reports – that as climates are changing due to human activities, economies can be adjusted to reduce future temperature increases (p. 259) – and is contrasted with discourses of "scepticism" and "catastrophism". Exploratory research suggests that some television programmes may offer a more alarmist picture (Matos, Santos, Alvarenga & Sales, 2012).

### *(Re)producing Top-down Techno-managerial Discourses*



In analysing the coverage of COP15 and COP16 in Brazil's largest news magazines – *Veja*, *Isto É*, *Época* and *Carta Capital* – Girardi et al. (2013) found a significant emphasis on economics, namely the costs involved in addressing climate change, which was constructed discursively as a matter of negotiation, like “a business desk of governments and international businessmen who judge how much they can "lose" if a rapid reduction of greenhouse gases is needed” (p. 191). The researchers noted that “the kind of journalism observed in [their] analysis [could] not break with this [ecotechnocratic] logic” (Girardi et al., 2013)) (our translation). Arguably, in this type of representation climate change becomes a political and economic dispute and is further retrieved from citizens' realm.

Reis (1999, p. 150) had already noted a strong presence of economic topics in stories on the 1992 summit, which he associated with the “Brazilian's media then prevailing opinion that environmental problems cannot be solved, or even mitigated, without massive investment (which, in the case of developing nations, should come mainly from industrial countries)”. In the run up to and during Rio+20, the 2012 UNCED summit, the theme of the “green economy” gained hegemonic status in the Brazilian media and worldwide (Girardi, Moraes, Loose, 2012; Moraes, 2015), further normalizing techno-managerial views. The concept of “green economy” comes from the sustainable development discourse with a promise of continuous economic improvement derived from environment-oriented policies and technologies, and strategic ambiguity regarding environmental impact and natural resource availability (Kenis & Lievens, 2015).

Moraes (2015; 2017) examined discourses on climate change in Brazilian news magazines during Rio+20. While she did not encounter totally monolithic constructions and a few threads of alternative thinking were weaved in representations of climate change, the discursive edifice rested solidly on economic priorities. Other media portrayed climate politics along similar lines. Zamith et al.(2015, p. 351) found that *Folha de São Paulo* was “more likely to promote frames that failed to challenge the status quo” than newspapers from countries with smaller contributions to climate change than Brazil's. They went on to argue that its readers...

...were arguably presented with a normative construction that simultaneously fails to suggest choices for future direction or change and instils a sense that individual or collective action leading to real change may not be realistically feasible. Therefore, readers of the *Folha* (...) may come to see the issue as a nuisance that is both complex

and prohibitively expensive to address and thus demand less action from their government. (p. 351)

### *Looking Away from Meat - and Other Silences*

Most analyses of media coverage tend to focus on what is present and overlook what is not. However, silences can have crucial implications, including the indirect legitimization of given practices. Despite the potential effectiveness of a serious reduction of meat consumption (especially beef), and multiple co-benefits in terms of health, environment and food security, that idea continues to be a near taboo for most journalists and other social actors. Noting that at least half of Brazilian emissions result from meat production (and up to 80% from the related categories of land use change and agriculture), Lahsen (2017) has recently produced a striking analysis of the press avoidance of this issue. She analysed the distribution of references to meat and alternative energies in climate-mentioning articles in *Folha de São Paulo* and *O Estado de São Paulo* and found an “overwhelming focus on energy issues, unreflective of national emissions profile” (p. 23). In sharp contrast, the contributions of meat to Brazilian greenhouse gas emissions were hardly ever present in the press and when mentioned they tended to be downplayed. The role of meat in Brazilian (food) culture and the power of the agribusiness sector (including at the political level) are among the factors that may explain this journalistic blindspot.

The ANDI study (Vivarta, 2010) pointed to other aspects that could be improved or more frequently addressed. They found that climate change coverage is “highly concentrated” (p. 7) in the newspapers with largest circulations and rarely features in the agenda of smaller local newspapers, which could be important to draw bridges with the spaces and realities that people inhabit. Whereas they found a move in the press coverage from climate impacts to responses, there was a low level of critical analysis of the causes of climate change and of political decisions. They argue that discussion should be expanded “contemplating not only technical aspects related to [climate change], but also placing issues related to politics, economics and behaviour” at the core of the debate (p. 62). Relatedly, Amaral & Rubin (2013) pointed to the common disconnect between issues in the press. Links between climate change and other problems, such as urban planning or river management and associated political responsibilities, although crucial were not discussed in the issues of *Zero Hora* newspaper that they analysed.

## News-making and News Consumption

Several environmental communication scholars have called for research integrating the different moments of the news circuit (Hansen, 2011; Olausson & Berglez, 2014). Studies that simultaneously consider news-making contexts, conditions and practices (ideally including analysis of the discourses of relevant social actors); media(ted) discourses; and the processes of consumption of news about a given issue are likely to offer a clearer picture of the processes of encoding and decoding of meaning and of how news functions socially.

Together with their analysis of news texts, Rodas and Di Giulio (2017) interviewed journalists from several Brazilian media, who judged the national coverage of climate change as generally “superficial”. The emphasis on high-level international meetings was justified with a stated preference to report on “important people’s” statements (p. 112) (our translation). Other judgements about the public’s values and expectations appear to impact on journalistic decisions. For instance, one journalist noted that while “people claim that the media should have a preventive approach” the “Brazilian culture is not like that (...) Brazilians want to know about a crisis when it is already taking place” ( p. 112) (our translation). Journalists acknowledged that they were rather reliant on international news agencies, which was partially explained with a lack of human resources. The study also suggested that timeliness (with coverage often tied to key events), human interest and conflict were the dominant news values that journalists considered in covering climate change.

Loose (2016) combined her analysis of a local newspaper’s coverage with a study of perceptions of journalists, news sources and readers regarding climate change and attempted to understand the socio-cultural circulation of climate change discourses. In interviews with journalists of *Gazeta do Povo*, a newspaper from Curitiba, Paraná state, about their work on climate change, she identified an important factor external to newsmakers, namely the availability of information sources. In interviews, journalists held that local sources were “less accessible” than national-level officials and other “central” sources, who answer press requests regularly. While observing a newsroom’s routines, she found that journalists would think primarily of national reference figures when producing news stories on climate change and discarded the possibility of contacting experts from the newspaper’s hometown due to difficulties experienced in previous attempts. When Loose interviewed potential local sources they admitted that they did not have a pro-active attitude towards the media. She concluded that local policy fora and locally-based scientists did not offer ground material for journalists to build the global-local relation involved in climate change. Another important point refers

to journalists' conceptions about climate change: structural aspects such as consumerism and the capitalist system were less present in their discourse than research suggests is the case with journalists from other countries (Loose & Carvalho, 2015; cf. Engesser & Brüggemann, 2016).

Turning to news readers, Loose (2016) found that views on climate change were disconnected from daily life in Curitiba as the media's focus on negative global effects and international treaties had repercussions in people's understanding of the problem. Inquired readers pointed out gaps in the coverage of climate change in the local newspaper *Gazeta do Povo*, especially in terms of local significance.

## **Conclusions and Future Research**

Brazil has the potential to play a key role in the politics of climate change given its natural resources, sheer size and several other factors. Whereas the country rose to prominence in the international stage for good reasons from around 2009, the last few years have seen a series of setbacks in climate policies and other related measures. The decline in political commitment stands in contrast with a positive "climate of opinion" as public support for action is very high. Brazil faces large risks from climate change impacts and is highly vulnerable, which calls for more and better resilience-oriented policies. Appropriate policies and implementation mechanisms for forestry, agriculture, livestock and other land uses, among other sectors, could also contribute strongly to reduce greenhouse gas emissions and mitigate climate change.

In a context of limited journalistic freedom and resources, climate change has mainly been put on the agenda via international events and international news agencies, and mostly depicted as global and distant issue, although some research suggests that the focus on national dimensions of climate change has been growing in recent times. Official sources have been clearly dominant in the press and media discourse has been predominantly techno-managerial, perhaps unsurprisingly in pro-neoliberalism media. The strong ties between media organizations and economic and political interests in Brazil are likely to also play a role in the exclusion of more transformational discourses. Nonetheless, when various factors are taken into account, the Brazilian press emerges as favourable to government-led mitigation policy, which compares positively with other countries' media (Broadbent et al., 2016).

The first obvious observation about research gaps and opportunities on media and

climate change in Brazil concerns the relative lack of analyses of television. Although this is not unique of Brazil, it is all the more significant given the place of television in the national culture. Analyses of televised news as well as of representations of climate-relevant matters in other television genres would certainly help understand the symbolic construction of climate change in the country. Radio also deserves more attention from researchers.

Another gap concerns alternative (or independent) news media. Although with small audiences, those are the platforms where status quo-defying discourses are most likely to be found. If indeed those discourses are present, how they are developed, how they are received and how they play into the engagement of certain social groups would be valuable research questions (Carvalho, van Wessel & Maesele, 2017).

Future research would also benefit from expanding in terms of scope. Most of the studies on Brazil (as elsewhere) have consisted of content (or discourse) analyses of media coverage. Although it is important to continue examining the evolution of media representations of climate change, it is vital to know how different publics consume/interpret/appropriate those representations. Studying the full cultural circuit of climate change would also involve examining how different social actors communicate about it and how journalists filter and reconstruct those discourses.

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