Social Representations in Psychology: A Bibliometrical Analysis

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In this paper, we analyse the evolution of social representations theory (SRT) over time, languages, and journals by comparing it with the evolution of social identity theory (SIT). Additionally, we perform a lexical analysis of abstracts on SRT and discuss the changes of topics over time and languages. While SRT is less represented in mainstream journals of social psychology than SIT, it is more widely distributed across linguistic areas, as shown by the relative frequency of different languages. Two major research domains often associated with SRT are health issues and intergroup dynamics. Papers concentrating on SRT as a theoretical approach are more recent and primarily written in English, while French-language papers focus less on theoretical aspects. While SRT is diverse and recognized in social psychology, it is not as widely known as other social psychological theories (e.g., SIT). We conclude with thoughts on how to promote wider integration of SRT with mainstream social psychology.

Fifty years ago, Moscovici published his now famous book "Psychoanalysis: Its image and its public" on the understanding of psychoanalysis (Moscovici, 1961). In this book, Moscovici developed social representations theory (SRT), which is now a major theory that has considerably shaped research in European social psychology. SRT has elicited much debate, theoretical developments, and research in very diverse domains. To map this diversity and to complement the commentary about SRT in this special issue, we investigate the literature published on the topic of social representations (SR) via a bibliometrical analysis.

A primary goal of SRT is to explain how people understand scientific theories and expert knowledge and integrate this knowledge into common sense (Moscovici, 1961, Wagner & Hayes, 2005), as well as how systems of knowledge change when entering new contexts (Jovchelovitch, 2007). Additionally, SRT emphasizes the societal aspect of psychological research: Social representations should not only be studied per se but also as an opportunity to address and challenge societal problems (Howarth, 2006). This emphasis on societal issues is a characteristic of the European tradition, more than its North American counterpart. The concept of SR has, however, often been criticised regarding its alleged lack of clarity (Jahoda, 1988) and distinction from other psychological concepts like schemas, attitudes, beliefs and interpretative repertoires (Potter & Wetherell, 1987). An analysis of the distinction between these concepts and representations is beyond the scope of this article, but several distinctive features can be mentioned: Social representations are more social than either schemas or attitudes as they originate from interaction and communication (Howard & Renfrow, 2006), they are seen to be more dynamic than schemas (Howard & Renfrow, 2006) and more encompassing than both attitudes and beliefs (Fraser, 1994). Social representations are constructed and diffused via both interpersonal and media communication, and their emergence and diffusion serves to make sense of expert knowledge and to transform expert knowledge into common sense (Jodelet, 1989).

In this article, we examine the evolution of SRT over time via a bibliometrical analysis. To meaningfully interpret our results, it is useful to have a reference point. We thus compare selected data on SRT with data about Social Identity Theory (SIT; Tajfel & Turner, 1979). SIT posits that people categorize themselves and others into social groups, and that the need for positive social identity leads to comparison processes between groups. SIT has been applied to different domains like intragroup processes (e.g., group homogeneity) and intergroup processes (e.g., in-group bias, social mobility). We chose SIT as a reference point,

because it is also a European social psychological theory which was developed around the same time as SRT (Tajfel used the concept of "social identity" for the first time in 1972).[1]

As a first step, we report descriptive analyses of articles published on social representations (SR). We investigate the evolution of SRT as a topic in scientific research journals over time to identify major turning points in the diffusion of SRT. Additionally, we examine the languages in which the articles appear to describe the relative contribution of each language group over time. Finally, we analyse the geographic origin and thematic focus of journals in which articles on SRT are most often published. Next to this descriptive and comparative overview of the literature, we are interested in the research domains in which SRT is most often used as a theoretical framework.

With this bibliometrical analysis, we want to examine the impact of SRT over time and its reception by researchers from different research areas and language backgrounds. The resulting pattern of dissemination of SRT can be indicative of major research trends and publications, and may allow us to understand the diffusion of SRT in different research domains. Additionally, this analysis constitutes the first bibliometric picture of this research tradition, thus giving researchers a clearer idea of the breadth of SRT.

METHOD

Corpus

We used the PsycInfo electronic database. It includes more than 2,450 journals in 29 languages, from more than 49 countries since 1806, making it the reference research database for psychologists all over the world. We used this database because it focuses primarily on peer-reviewed literature and covers all areas of psychology as well as neighbouring disciplines, e.g., medicine, neuroscience, social work, or sociology. Additionally, all publications comprise an English abstract, thus enabling a common content analysis of all abstracts, including articles written in another language than English. In spite of these advantages, the database necessarily entails a selection bias in the articles included in this analysis: Articles in journals that are not indexed in PsycInfo will not be included in our database. This includes most notably the present journal but probably also other additional

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[1] Of course, these theories differ in several respects (Breakwell, 1993) and thus the choice of SIT as a reference point can be criticized in various ways. Our reasoning here is that it is better to have a reference point than not to have one, and that SIT is as good a candidate for comparison as many other approaches.

journals and articles on SRT. We will address this limitation and how it may affect our results in the discussion.

The data on which our analyses are based were selected on June 10, 2011. No starting date was entered, such that we obtained all publications included in PsycInfo until this date. We searched for all publications using the command *social representation*.ab*. This returns all publications mentioning *social representations* (or *social representational*) in the abstract. We searched the abstract because it is less narrow than keywords and the title but still indicates that social representations is one of the major themes of the publication (as opposed to searching in the full text). This search returned 1,290 publications. We excluded articles published in 2010 and 2011 because the inventory of articles of these years had not yet been completed. We also excluded all books, book reviews, and dissertations, as they were only representative for titles written in English. Our final database thus contained 997 journal articles.

We searched for articles on SIT with the command *social identity.ab*, thus returning all publications mentioning *social identity* in the abstract. To compare the frequency of articles, we searched for articles from 1970 to 2009. These search criteria yielded 2,350 peer-reviewed articles (excluding books, book reviews and dissertations as for SRT).

Data analysis

We first performed descriptive analyses, which were based on the frequency of articles, the relative frequency of articles in different languages over time, as well as the frequency of journals including articles on SR and SIT. Because our analysis spans a long period of time, it is necessary to take into account the fact that the database may have increased over time before interpreting frequency data. To interpret the absolute frequency of articles on SR, we thus computed the size of the database (i.e., we searched for all articles published in a specific time period) and used this to compute a ratio of articles on SR and database size (number of articles on SR / number of articles overall). The evolution of the articles over time was plotted by year, while the relative frequency of articles in different languages was plotted by decades (e.g., 1970-1979), due to the low number of articles in the first years of our database.

We then analysed the content of the abstracts using a computer-assisted textual classification program called Alceste, which analyses co-occurrences of lemmatized forms of words in the corpus (Reinert, 1996). Alceste classifies words based on the context in which they occur (as opposed to their meaning, which is often the focus in classical content analyses). The program is well-suited for large databases and – due to its automatic procedure

– avoids the reliability and validity issues of more classical content analyses (Klein & Licata, 2003; Schonhardt-Bailey, 2005). Alceste operates in three steps: First, it segments the corpus into *elementary contextual units* (ECU; approximately 30-50 words; Kronberger & Wagner, 2000). Second, it creates classes which gather ECUs as a function of the co-occurrences between words. Third, two different hierarchical descending cluster analyses are conducted to test the validity of the classification proposed by the software in the preceding step. Consecutively to these steps, Alceste proposes a final classification keeping only thematic classes which share the largest number of ECUs across the two cluster analyses. For each class, words which are significantly present or absent in the classes (i.e., more frequent or more absent than expected by chance as indicated by a significant chi-square statistic with one degree of freedom) are proposed. Finally, Alceste examines links between these classes and passive variables defined by the researcher. In the present analysis, we introduced publication year and article language as passive variables.

RESULTS

We first present results of the descriptive analyses (evolution over time, language distribution over time, diversity of journals) before the results of the content analyses.

Evolution over time

Figure 1 depicts the absolute frequency of articles on SR up to and including 2009 and the relative frequency of articles on SR corrected for database size. Both curves follow a similar pattern, indicating that the evolution of the absolute frequency of articles is a good measure of the evolution of the theory over time. The first record of a journal article on SR in the database dates from 1971, i.e., ten years after Moscovici (1961). This delay may be due to the time it takes the scientific community to absorb a new theory into their scientific knowledge and to use it in published research. But it may also be due to the lack of inclusion of less prestigious journals in the database, which may publish articles on new theories more readily than more mainstream journals. The sudden increase in articles in 1985 (i.e., from 2 to 10 articles per year) is likely due to the publication of Farr and Moscovici (1984). A second major increase of publications occurred between 1993 and 1996 (i.e., from 16 to 42 articles per year), which may be related to the publication of Breakwell and Canter (1993), which includes contributions of several well-known researchers in the field of SRT. Additionally, in the early 1990s, a network on SRT with biannual international conferences and newsletters

was set up, which led to the foundation of the present paper, then called *Ongoing Productions on Social Representations* (Wagner, 2001).

The last, relatively steady, increase of publications started in 2000, after Moscovici (2000) was published (starting from 35 to up to 83 articles per year). This graph thus shows the increasing dissemination of SRT in psychological research, which became more widely known less than 20 years after its development. Additionally, these data draw attention to the potential influence key individual publications can have on the dissemination of a theory.
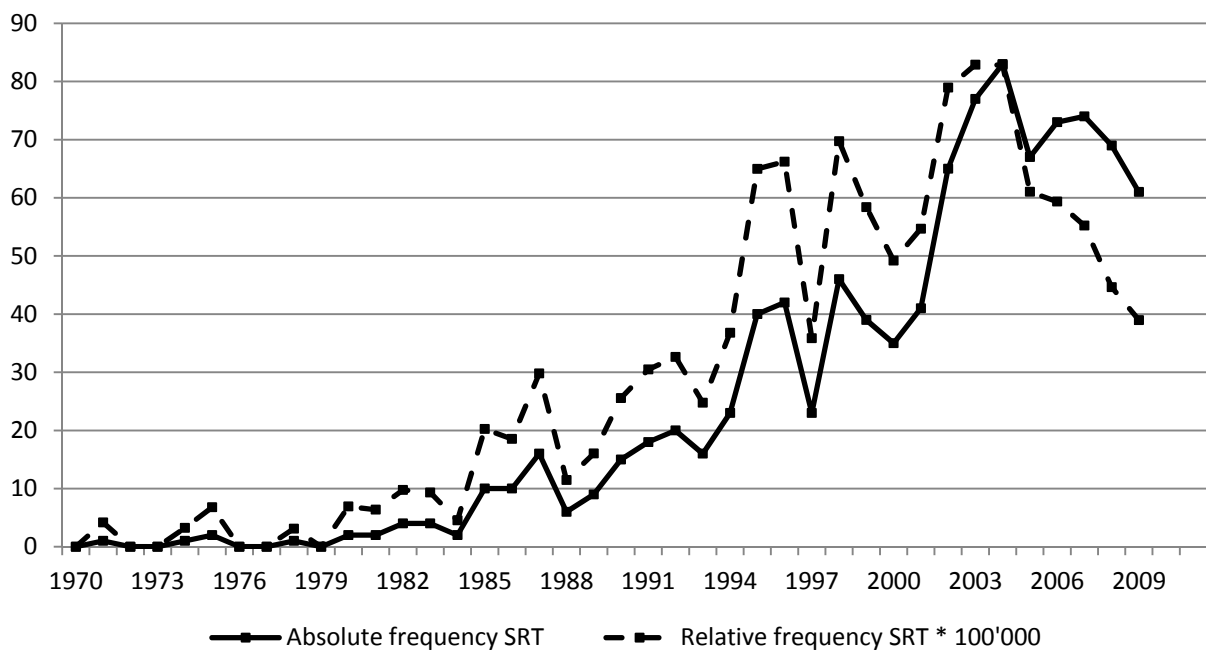

Figure 1: Absolute number of articles on SR per year (black line) and relative frequency of articles on SR compared to overall frequency of articles in the database per year (dashed line) (relative frequency was multiplied by 10^5 to facilitate visual comparison of the curves).

Figure 2 depicts the absolute frequency of articles on SR over time and the absolute frequency of articles on SIT over time. The frequency of articles on SIT and SR is comparable until 1983. In the 1980s, articles on both theories become more frequent but stay stable until the beginning of the 1990s. From then on, both theories steadily increase in frequency over time, but this increase is steeper for SIT than for SRT; indeed SRT seems to be stagnating since 2004. This suggests that articles on social psychological theories increased overall during the 1990s. SIT is, however, a more widely used theory in social psychological research than SRT.
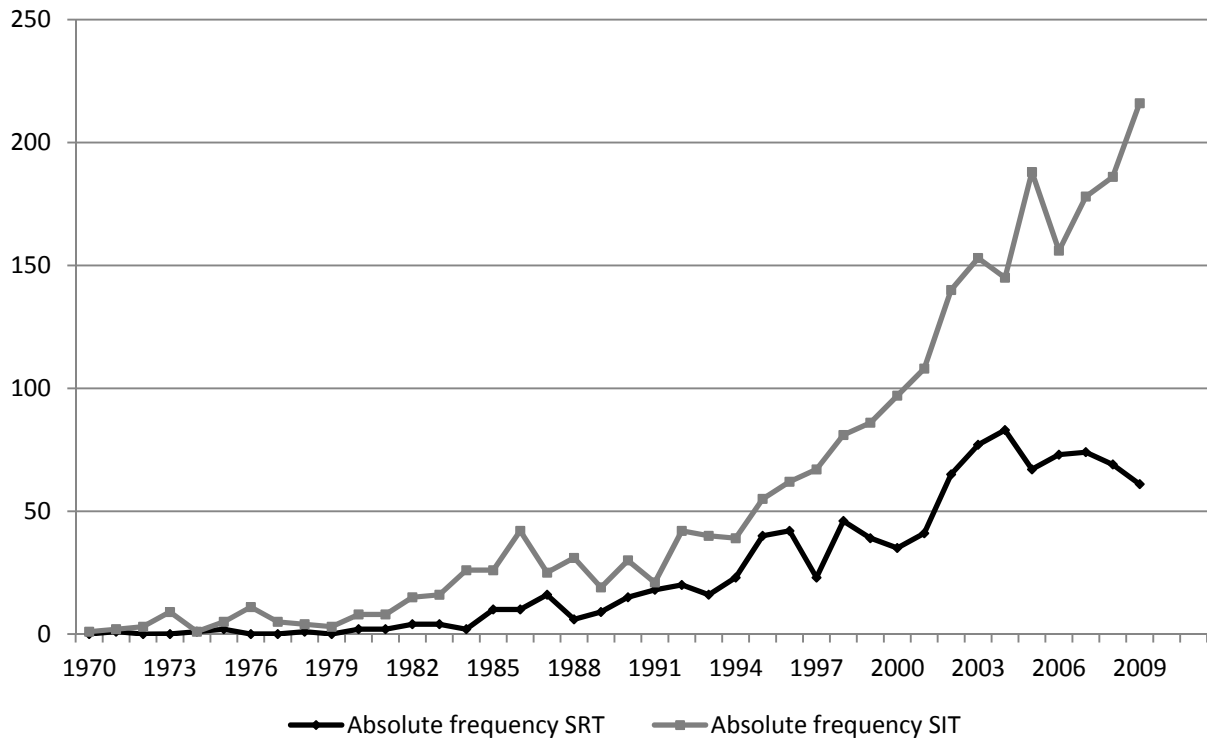
Figure 2: Absolute number of articles on SR per year (black line) and absolute number of articles on SIT per year (grey line)

Language distribution over time

Figure 3 depicts the relative frequency of articles on SR and SIT in different languages per decade. In the first decade, four of the five articles on SR were written in French, while only one was written in English. This is not surprising as Moscovici published his book in French, thus limiting the potential audience. After 1979 however, English becomes the predominant language, a switch that coincides with the higher overall frequency of articles (see Figure 1) and the publication of Farr and Moscovici (1984). Up to 2009, French remains the second most frequent language overall. However, in the last 30 years, there is an increase in non-French Romance languages. In the last decade, more articles have been written in Portuguese than in French, suggesting that SRT has strongly influenced psychological research in Portuguese-speaking countries. This may be due to the strong cooperation between Denise Jodelet and researchers in Brazil since the 1980s (Arruda, 2008). This may however also be due to a selection bias, in the sense that journals written in Portuguese may be better represented in PsycInfo than journals written in French or Italian. Overall the wide distribution of articles across many languages indicates that SRT has become a largely known and used theory and is not limited to research in specific geographical areas.

The language distribution for SIT is much less diverse. In all time periods, articles written in English represent at least 80% of all articles, with French again being the second most frequent language overall (similar to SRT). Overall, SIT is not as widely distributed as SRT in Latin languages (e.g., French, Portuguese, Italian).The predominance of articles written in English for SIT may be due to the fact that SIT was introduced by British researchers who wrote in English, thus reaching a wide audience. It may also be due to the fact that SIT research is published in more mainstream, English-language journals than SRT research. We thus turn to an analysis of journals.
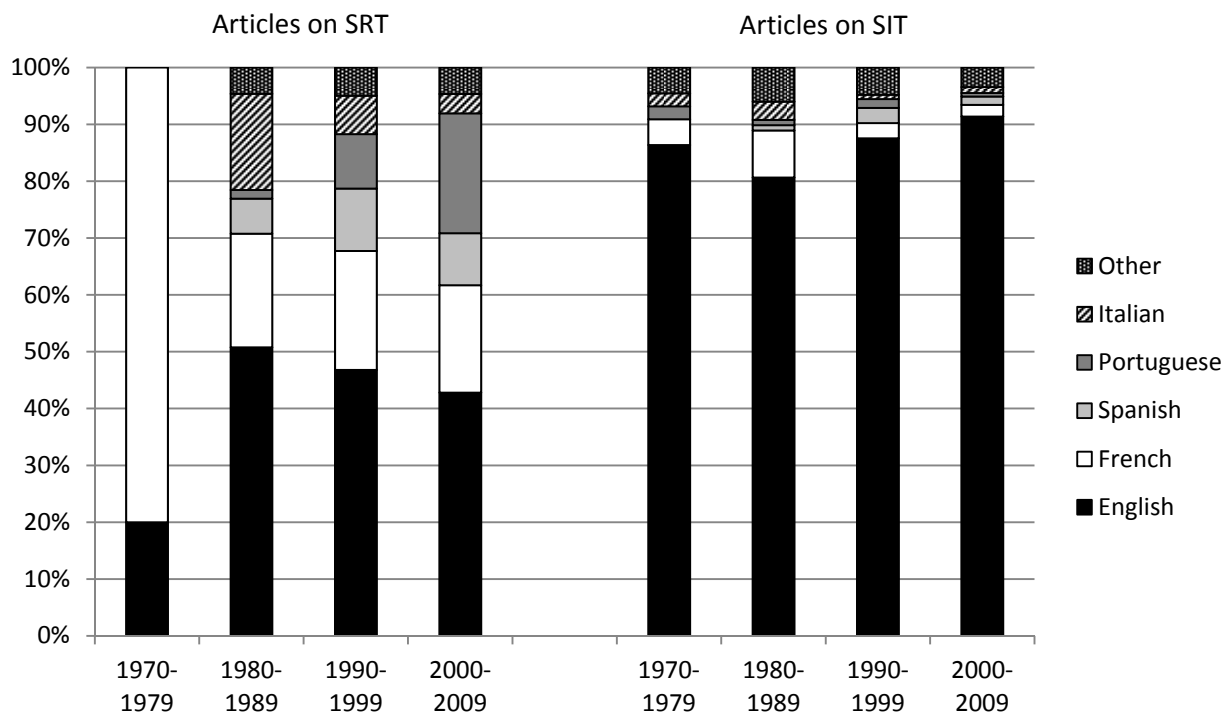

Figure 3: Relative frequency of languages over time periods of 10 years. Left side: articles on SR, right side: articles on SIT

Diversity of journals

Table 1 shows the ten most frequently mentioned journals publishing articles on SR and SIT. The Belgium-based journal *Cahiers Internationaux de Psychologie Sociale* has published most articles on SRT, closely followed by the French-based *Bulletin de Psychologie* and the U.K.-based *Journal for the Theory of Social Behaviour*. These three journals together published 14.9% of all SRT articles. Four of the top ten journals explicitly focus on social psychology (as well as two of the top three journals), while four journals target all domains of psychology. Prestigious mainstream social psychology journals like the *Journal of Personality and Social Psychology*, the *Journal of Experimental Social Psychology*, and the

Journal of Social Issues never published articles on SR, while another prestigious journal, *Personality and Social Psychology Bulletin*, only published two articles on SR. However, European mainstream journals in social psychology (*European Journal of Social Psychology*, *British Journal of Social Psychology*) did publish several articles on SRT, thus suggesting a stronger acceptance in European mainstream social psychology than in North America.

As many of these journals were founded after 1970, we also calculated the average number of articles per journal issue since 1970. Here, we see that two Brazilian-based journals published most articles per issue (*Psicologia: Reflexão e Critica* and *Estudos de Psicologia*), followed by the *Cahiers Internationaux de Psychologie Sociale*. The two Brazilian-based journals were founded in 1997, thus showing a strong coverage of SR articles since then. The high frequency of articles per issue for journals founded in the 1990s is likely due to the fact that SRT was already an established theory when these journals were founded. The fact that the journal *Cahiers Internationaux de Psychologie Sociale* is still on rank three in this list, confirms that it is the most prominent journal – included in our database – for articles on SRT.

The most prominent journals for articles on SIT with regard to absolute number of articles are the *European Journal of Social Psychology*, the *British Journal of Social Psychology*, and two journals published by the APA, the *Journal of Personality and Social Psychology* and *Personality and Social Psychology Bulletin*. All of these journals focus on social psychology and published 14.2% of the articles on SIT included in our database. Of the top ten journals with highest frequency of articles on SIT (publishing 22.9% of all articles in our database), seven had an explicit focus on social psychology, one on political psychology, and two on group processes and relations. These results suggest that SIT is much more widely used in mainstream social psychological journals than SRT, but that its main outlets remain European-based social psychological journals.

Table 1: The journals with highest frequency of articles on SR and SIT

	Year founded	Country of institution	SRT			SIT		
			Absolute frequency	Mean frequency	Rank	Absolute frequency	Mean frequency	Rank
British Journal of Social Psychology	1962	UK	25	0.16	8	99	0.62	1
Bulletin de Psychologie	1955	France	50	0.21	7	9	0.04	15
Cahiers Internationaux de Psychologie Sociale	1978	Belgium	53	0.41	3	11	0.09	13
Culture and Psychology	1995	International	21	0.35	4	1	0.02	17
Estudos de Psicologia	1997	Brazil	26	0.50	2	7	0.13	11
European Journal of Social Psychology	1971	Europe	24	0.10	11	127	0.54	2
Giornale Italiano di Psicologia	1974	Italy	20	0.14	10	7	0.05	14
Group Dynamics: Theory, Research, and Practice	1997	USA	0	0.00		25	0.48	4
Group Processes and Intergroup Relations	1998	n/a	0	0.00		36	0.50	3
Journal for the Theory of Social Behaviour	1971	UK	46	0.29	5	4	0.03	16
Journal of Community and Applied Social Psychology	1991	International	17	0.15	9	26	0.23	5
Journal of Experimental Social Psychology	1965	USA	0	0.00		31	0.13	11
Journal of Personality and Social Psychology	1965	USA	0	0.00		67	0.14	8
Journal of Social Issues	1945	USA	0	0.00		25	0.16	7
Journal of Social Psychology	1930	USA	0	0.00		40	0.17	6
Personality and Social Psychology Bulletin	1974	USA	2	0.00		67	0.14	8
Political Psychology	1980	International	0	0.00		26	0.14	8
Psicologia: Reflexão e Critica	1997	Brazil	25	0.64	1	0	0.00	
Revista Latino-Americana de Enfermagem	1993	Brazil	23	0.23	6	0	0.00	

Note. Absolute frequency: number of articles in database. Mean frequency: average number of articles per journal issue. Rank: based on mean frequency. Country of institution: if n/a, journal is not published by an institution

Content of articles on SR associated with time and language

Alceste was able to classify 75.9% of the corpus into six classes (Table 2). As the structure of abstracts follows editorial rules, several words were consistently associated together (e.g., gender and age of participants in the method part) leading to the appearance of three artificial thematic classes. These classes included 33% of the classified ECUs and were related to methodological aspects. The first included 13% of total ECUs and was labelled *sample description,* as it included characteristics of study participants. The second methodological class included 11% of total ECUs and concerned *variables* operationalized by authors in their studies. The last methodological class included 9% of ECUs and listed *analysis and statistical strategies*. Overall, these methodological classes included mostly articles from the 1990s, written in French or Italian. An investigation of typical ECUs for these classes indicates that these articles focus on techniques elaborated to capture SR (e.g., free association tasks) and are probably associated with the structural approach to SRT (Abric, 2001).

The fourth and fifth classes reflected two important research areas using SR and constituted 26% of the classified corpus. The fourth class was labelled *intergroup and political dynamics* and included 13% of the ECUs. It was composed of articles investigating ethnic conflicts, human rights, but also categorization phenomena. Articles written in the 2000s, and written in Hebrew and Japanese were significantly present in this class (only 4 articles in Japanese, but all present in this class). Overall, these articles were about current ethnic conflicts and integration issues, and not about methodological or theoretical aspects of SR. The second thematic class was related to *health and prevention issues* and included 13% of the classified ECUs. The main health topics were HIV, diabetes, and psychiatric disorders. This class concerned mainly articles from the late 2000s, and *not* written in French or Italian. As health and disease are one of the founding topics of SR in the French literature (Herzlich, 1992; Jodelet, 1991; Moscovici, 1961), this absence seems surprising. This may suggest that the articles concerned by this class are not interested in SRT per se but use SR as a method to investigate current issues in health and prevention (e.g., impact of health policies, risky sexual behaviour associated with HIV).

The last and largest class was labelled *theoretical approaches* and included 41% of the classified ECUs. In this class, both old (1980s) and recent (2000s) articles, written in English and German, are significantly present. The predominance of English literature and the absence of French literature on this topic are in line with the assumption that French researchers see SRT as both a theory and a method, while international research (published in English) focuses more on theoretical and meta-theoretical aspects. Moreover, the frequency of

theoretical articles in 2008 may be linked to the fact that the *Journal for the Theory of Social Behaviour* published a special issue that year to celebrate the English translation (Moscovici, 2008) of Moscovici's (1961) book. Interestingly, the words *science* and *scientific* are most strongly associated with this class, although we expected the understanding of scientific theories to be a predominant empirical research area. This may indicate that the understanding of scientific theories is currently a major field within the *theoretical* framework of SRT and is more often published in English than in French.

DISCUSSION

The goal of this article was to analyse the evolution of SRT over time, across languages, and its association with different domains of research. In comparison with SIT, we were able to show that SRT is less frequent in scientific publications. Additionally, SIT is more strongly represented in English literature and 'mainstream' social psychology journals than SRT. SIT is however less widely distributed across languages. The differential diffusion of SRT and SIT may be due to some extent to the fact that SRT was first developed and published by a non-English researcher: As a consequence, it was mostly non-English speaking researchers who absorbed the theory in their work and who – very likely - wrote non-English publications (this would also explain the more diverse language distribution of SRT opposed to SIT). Additionally, as non-English writing journals are less often included in the PsycInfo database, our analysis would underestimate the number of articles on SR to a stronger degree than those on SIT.

The content analysis allowed us to show two research domains which are most often associated with SRT, i.e., intergroup relations and health issues. The predominance in the health domain might be influenced by the fact that the first publication on SRT was based in this domain (i.e., Moscovici's study on the understanding of psychoanalysis), which might have made the theory more known in this research area than in others. The prevalence of research on intergroup relations and political dynamics may be due to the inherent societal aspect of the theory, making it easily applicable to these issues. Both research trends are relatively recent (2000s), suggesting that SRT has only lately been used to extensively investigate these topics.

Table 2: Classes extracted by Alceste: examples of typical words, anti-typical words, ECUs, publication year and languages for each class.

Typical words	Anti-typical words	Typical ECUs	Year	Languages
Class 1: Methodological aspects: sample description (13%)				
adolescent+, adults, age+, children, female, human+, male+, normal+, questionnaire+, school+, subject+, student+, studie+, university+, year+,	analysis, paper+, processes, research+, show+, suggest+, theor+	Human subjects: normal male and female French adolescents and young adults, aged xx years, compulsory and post compulsory education students. Normal male and female Swiss adolescents and young adults, aged xx years, compulsory and post compulsory education students.	**1992** **1993** **1998** *2006* *2007*	**French** *English*
Class 2: Methodological aspects: variables (11%)				
aggress+, complete+, control+, correlate+, differ+, EXPAGG, express+, gender, instrumental+, item+, measure+, scale+, score+, smoking, target+	approach+, concept+, health+, paper+, perspective+, research+, theor+, social+	Subjects responded to a questionnaire on orientation to aggression, either spontaneously or as they believed a member of the opposite sex might respond. When asked to respond as a member of the opposite sex, men accurately mirrored women's higher expressive total score on the questionnaire, but there was no similarity in terms of item total correlations.	**1994** **1996** **1997** *2008* *2009*	**Polish** *Portuguese*
Class 3: Methodological aspects: analysis and statistical strategies (9%)				
analysis, associ+, content+, correspond+, data+, evocation+, free+, gather+, semantic+, software, statistical+, task+, test+, use+, word+	female, human+, represent+, theor+, social+	Data were gathered using the free word evocation technique. These data were processed by using frequency analysis based on the calculation of frequency and average order of evocation of words.	**1984** **1995** **2001**	**Portuguese** **Spanish** *English*
Class 4: Intergroup and political dynamics (13%)				
country+, differenti+, discrimin+, ethnic+, European, govern+, ingroup+, national+, position+, principle+, race+, right+, universal+, war+, western+	age+, approach+, female+, health+, psycholog+, represent+, subject+, year+, social+	Absolute ontogeny was found only at the level of ethnicity, not nationality, with Japanese showing the least ontogenic focus. Taken as a whole, Chinese and Japanese representations showed potential for conflict, but broad historical perceptions were unrelated to individual differences in political preferences or strength of social identity.	**1978** **2004** **2009**	**Hebrew** **Japanese**
Class 5: Health and prevention issues (13%)				
aids, care, diabetes, disease+, drug, famil+, health+, HIV, illness, intervention+, patient+, prevent+, psychiatr+, service1, treat+	age+, cognit+, male+, student+, represent+, studie+, theor+, year+, social+,	By better understanding the interaction between gender, the experience of HIV, and the institutional organization of healthcare, we can identify ways to reduce men's reluctance to attend care facilities for PLWH and improve both prevention and treatment oriented programs.	**2007** **2008** *1995* *1998*	**Portuguese** **Spanish** *French* *Italian*
Class 6: Theoretical approach (41 %)				
approach+, article, cognit+, communicat+, concept+, construct+, discursive+, Moscovici, paper+, perspective+, processes, psycholog+, research+, scientific, theor+	age+, associ+, disease+, educat+, normal+, questionnaire+, studie+, subjects+, were	Queries about social representations and construction. Discusses the social representation approach as a paradigmatic way of making scientific sense of an array of social phenomena ranging from the role that popularized science plays in modern societies, to social and cultural processes.	**1988** **2008**	**English** **German** *Spanish* *French*

Note: + = lemmatized form of a word (words with the same root); Words are alphabetically ordered; all $\chi^2 (1) > 3.84$; all ps < .05; years and languages in bold indicate a frequency significantly higher and in italics a frequency significantly lower than a random distribution (χ^2 with 1 degree of freedom).

However, because SRT has long been applied to studies in the domain of health (e.g., Jodelet, 1991), this finding points to a major limitation of this study: As earlier studies have often been published in books or less prestigious journals, they are not included in our database. This bias may affect our inclusion of publications of SRT more heavily than publications of SIT as we have seen that SIT has been better accepted in mainstream and more prestigious journals than SRT. These latter journals are more likely to be included in the PsycInfo database, which would again bias the number of articles on SRT to a stronger degree than that of SIT. The investigation of the transformation of scientific into lay theories, one of the core components of SRT, seems to be associated with the theoretical development of the SRT and to have been more prominent in the 1980s and again recently in the 2000s. These findings indicate a shift in SRT research, from topics related to the development of the theory to the application of SRT to diverse psychological phenomena.

In light of this discussion and interpretation of the results, we have to consider several limitations of the present study. The first, and likely the most important, limitation lies in the selection of articles on which our analyses are based: Articles that are published in journals which are not represented in PsycInfo are missing from our analysis. This selection may bias our results in several ways. English-language and American journals may be overrepresented. This overrepresentation may especially bias our findings against the first years of SRT literature, in which more articles were written in French and Italian. This might also explain why there were so few articles in our database from 1970 to 1979 and none before that. One of the major journals in the field of SRT, *Papers on Social Representations*, is not referenced in PsycInfo, thus further biasing our results. This journal has been publishing studies on SR since 1992.[2] Despite these issues, PsycInfo remains an obvious choice for a bibliometric analysis because of its status as a reference database for psychologists. A related limitation concerns the search truncation 'social representation*.ab': There may be journal articles focusing on SRT who do not include social representations in the abstract (or use only 'representations'). These articles were – by definition – also excluded from our analyses.

The decision to focus exclusively on journal articles presents a second challenge to our results: While journal articles have become the main outlet for researchers in psychology and social sciences, the publication of books and book chapters has remained quite popular. Excluding books and chapters from our analyses may thus neglect more publications in the

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[2] Analysing the Web of Science database with the same search truncation as used in this study, we were able to determine some further journals publishing articles on SRT like *Ciencia & Saude Coletiva*, *Saude e Sociedade*, and *Public Understanding of Science*, for instance.

earlier years of our analysis than in the latter years, which would also explain the small number of publications in our database from 1960 to mid-1980s. Additionally, important contributions to the development and advancement of theories are often made in book form: All of the publications mentioned in the context of the diffusion of SRT in this paper are books and thus not included in our database.

A third limitation of our study is that the content analysis was based on the abstracts of the articles and not on the whole text. This necessarily limited the vocabulary for the content analysis and prevented the formation of potential sub-classes of the *theoretical approach* class, which might have led to a more in-depth analysis of the different theoretical approaches over time (e.g., the central core vs. organising principles approach). The decision to analyse the content of abstracts was mainly based on the fact that all abstracts were available in English, while the articles were written in different languages, and the full text of all articles is not available. The analysis of the abstract therefore allowed the inclusion of all articles. Additionally, the abstract typically contains the most relevant information of the article, which ensured that SRT was a major focus of the articles we found.

The last limitation concerns the Alceste method. Due to the complexity of the statistical principle behind this method, it is important to keep some elements in mind when interpreting the results. Alceste is not a tool for discourse analysis: It provides information about topics which organize coherent textual data (as opposed to providing information about meanings which is often used in discourse analysis) (Reinert, 2001). As a consequence, the extracted classes are not necessarily "self-evident" (Klein & Licata, 2003) and require an interpretation by going back to the *discursive* contexts (the abstracts). This step is essential to ensure that the extracted classes are not artificial (as we mentioned on page 11.11). For the present article, we reduced potential problems linked with Alceste analyses by: 1) using textual data which respect the basic postulate of this method (the coherence of *discourse)*, 2) considering the nature and the context of textual data, and 3) using Alceste as one element of a broader analysis crossing other types of data (descriptive analyses).

CONCLUSION

We conclude this article with some thoughts about the possible paths SRT might take for the future. SRT has proven to be a fruitful approach for many different research topics (e.g., health and diseases, intergroup relations, new technology, understanding of science, etc.) and has been incorporated in research from various disciplines. Additionally, SRT has integrated

the societal dimension to a stronger degree than most other social psychological theories, thus representing this fundamental aspect into current social psychological research. Nevertheless, in order to avoid complacency, we would like to make one concrete suggestion for the future development of this approach. This suggestion is based on the finding that, relative to other approaches like SIT, SRT is conspicuously absent from mainstream social psychology. We assume that engaging more with the mainstream of social psychology will help to ensure the perenniality of SRT in the future. We thus advise SRT researchers to engage more strongly with other researchers and theories in social psychology. They should explicitly differentiate SRT from other social psychological theories and highlight its unique added value as a research tool for understanding societal dynamics. Additionally, SRT researchers should continue to strengthen their claims by moving from descriptions of social representations to explaining their origins and investigating their functions. In a critical but sympathetic review (Jost & Ignatow, 2001), this aspect was highlighted as a potential area for the future development of SRT. A better knowledge of processes related to dynamic phenomena and functional aspects would make SRT even more relevant to the wider social psychological community. More generally, SRT researchers should seek to engage more with the mainstream of social psychology, e.g., by writing more articles in English and submitting them to mainstream social psychology journals to bring the theory to the attention of a wider public. On the other hand, mainstream social psychology journals may need to broaden their perspectives beyond positivist approaches to constructivist theories. Social representations theory is an extremely useful theory to study many social phenomena, and we should therefore aim to strengthen its theoretical claims and work towards increasing its recognition in mainstream social psychology.

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