

## Development of Qualitative Semi-Structured Interview Guide for Case Study Research

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### ABSTRACT

*Interviewing is an effective strategy to acquire data for qualitative research that uses case studies as a research methodology. It helps to explain, understand, and explore research subjects' opinions, behavior, and experiences to narrow down the area of research that researcher is interested to discover while listening to them being involved through dialogue. Therefore, structured or semi-structured interviews become effective tools of knowing the experiences and perceptions of research subjects relating to central themes of area of investigation. The aim of this research is to share with researchers the systematic process to be followed in developing semi-structured interview guides. Literature review suggests five distinct phases that the researcher needs to be mindful of when developing a qualitative semi-structured interview guide; they must identify if the prerequisites for conducting a semi-structured interview are met, utilize previously acquired knowledge, formulate a preliminary guide, pilot test it, and then present the completed semi-structured interview guide. Salient features of each phase are explained through literary support followed by researcher's experience of working on each phase to proceed in developing the interview guide. A well-developed semi-structured interview guide becomes an authentic and valid source of data collection whereas weakly developed semi-structured interview guide distorts the findings of research resulting in unreliable, inaccurate and invalid data collected.*

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### INTRODUCTION

For qualitative researchers, there is no absolute reality, but multiple realities as constructed by individuals within particular social and cultural context. Thus, reality has multiple interpretations that could be unique and peculiar to individual experiences and

context. Qualitative researchers believe that the behaviour of individuals towards a particular situation is context related, context-dependent and context-rich. Therefore, researchers are expected to understand the whole picture and interpret the variation in different situation considering subjectivity of experiences (Cohan, Manion and Morrison, 2018; Gay, Mills and Airasian, 2015; Merriam, 2009). Qualitative research helps researchers to move beyond the statistics and understand the behavioral conditions from the perspectives of the research subjects (Zainal, 2007). The quality and trustworthiness of a study is affected by the rigorousness of the data collection procedures used (Kallio, Pietila, Johnson & Kangasniemi, 2016) and have an impact on the results of the study (Gibbs et al. 2007). Qualitative case study is holistic and in-depth investigation of simple and complex issues within specific context ranging from small to large geographical areas and limited number of subjects. It explores and analyses contextual events, conditions and their relationships (Zainal, 2007). It is a practical inquiry to explore, understand and investigate phenomena under investigation within its context using multiple pieces of evidence (Zainal, 2007). The process and result of a phenomenon under investigation can be explained via careful observation, reconstruction, and analysis; in short, a case study.

Case study research can be classified into three categories:

- Exploratory: Studying a phenomenon to gather pertinent data related to the researcher's interests.
- Descriptive: Studying a phenomenon in a natural setting and collecting the data as it happens in a narrative form.
- Explanatory: Closely studying the data hidden within the phenomenon.

Analysis becomes the basis of the formation of theory or testing of theory (Zainal, 2007). McDonough and McDonough (1997) suggests interpretive and evaluative types of case study. Through interpretive case study, researchers interpret the data found in the phenomenon and in evaluative case studies, researcher evaluates the data found in the phenomenon. However, there is no hierarchy in the categories of case studies (Zainal, 2007). They could be of intrinsic (case is examined for its own sake), instrumental (small group is selected to examine a particular behavior and generalizations are made) and collective nature (data is collected from different sources and findings are generalized) Working on the design of case study is of utmost importance for single or multi site case study (Zainal, 2007).

In case study research design, data is usually collected via interviews. Interview is dialogue between the researcher and the research subjects. It relies on timely obtaining of information from the interviewee who is prepared to make himself or herself available. In this dialogue, the researcher queries the subject(s) with a set of questions relevant to the area of interest under study. The questions to be asked are designed beforehand and posed to the interviewee. Therefore the interview is conversational and the interviewer asks probing questions to clarify and refine the information and interpretation to obtain detailed response for the clarification of answers (Gillham, 2000; Stake, 2010). While interviews are often a one-to-one affair, they can be conducted between a researcher and a focused group as well (Runeson & Höst, 2009). The structure of the individual interview is flexible to enable the subjects to easily talk about their point of view on a topic, raise concerns, and alter the content of the interview. The interviewer is also able to better probe and explore the responses of the interviewee, and change the order of topics being covered to get better

responses. Interviews are to be interactive, generating interaction between the interviewer and interviewee. This interaction is in a sense what is asked and the way the questions are framed must be influenced by what the interviewee has already said. Though initial responses are fairly superficial, the interviewer is expected to probe into a deeper level for complete understanding of interviewees' values, beliefs, experiences, etc. (Ritchie, Lewis, McNaughton & Ormston, 2013). Interview questions are drawn from the already-framed research questions and they can be open or closed ended (Runeson & Höst, 2009).

Case study research remains linked to theoretical framework and responds to the research questions by extracting overt and covert data from the subjects, following procedures and applications mentioned in social science research while keeping record of evidences gained quantitatively or qualitatively particularly when interviews and observations are used as sources of collecting data (Zainal, 2007). Inability of researchers to observe the behaviour and feelings of respondents lends them to gain insight into the current or past incidents through interviewing the participants. It is one of the best and commonly-used techniques of data collection for the production of rich data while explaining the perspective of subjects. The interview transcripts contain extensive details and examples during the process of data collection through interviews (Gay, Mills, Airasian, 2015; Merriam, 2009). In qualitative research, interviews are used as the main strategy of data collection coupled with field notes, participant observation and document analysis (Bogdan and Biklen, 2007). Interview is further considered as a purposeful interactive conversation between two or more than two people. It is directed by one to extract information from the other taking a shape of its own to get descriptive data in the words of the subject on the topic under investigation (Bogdan and Biklen, 2007; Gillham, 2000). Research subjects generally disclose confidential matter in face-to-face interviews and not in an anonymous questionnaire (Gillham, 2000). Hence, interview turns out to be a powerful tool of getting to know the experiences of people (Rabionet, 2011). Interviews are used to collect data when a small number of people are involved in the research (Gillham, 2000). The purpose of the interview is to obtain required information or invite interviewees to interpret the required issues (Stake, 2010).

Interviews can be etic or epic type. Etic interview is structured around the issues of the researcher hence it is focused. Epic interview is structured around the issues of interviewees hence it is open (Stake, 2010). Irrespective of the etic or epic nature, interviews can be fully structured, unstructured and semi-structured. The questions, and the order in which they'll be asked in, is pre-planned in a structured interview, whereas in an unstructured interview, the questions are posed as general concerns and interests held by the interviewer (Runeson & Höst, 2009).

A structured interview is the most important form in case study research because questions are framed around the topics that are essential and cannot be answered in any other way. Semi-structured interviews are standardized, flexible, unique and personal, based on open ended questions (Gillham, 2000). A semi-structured interview is similar to a structured one, in that the questions are pre-planned, but the order is decided on the fly, based on how the conversation goes. The list of questions helps the interviewer be certain that all relevant queries were asked (Runeson & Höst, 2009). There is a requirement that questions in a semi-structured interview adhere to the three principles of specification, division, and tacit assumption. Specification deals with the focus of the questions, while division is to ensure

that the questions are worded and divided appropriately, and tacit assumption means that the researcher must discern the true meaning that hides beneath the interviewee's response (Barriball & While 1994). Although this technique is commonly used in qualitative research, the literature is scarce on methods to develop a guide for semi-structured interviews. Thus, the goal of sharing experience is to familiarize with the process of developing a semi-structured interview guide following a systematic process.

Semi-structured interview is generally considered as an easy data collection method (Kallio, Pietila, Johnson & Kangasniemi, 2016). The initial stage of interviewing for research is to decide on the type of interview to be used for data collection.

The researchers used a semi-structured interview as it narrows down the area of research or topics that researcher is interested to discover while listening to the stories of subjects. The conventional format of a semi-structured interview is that the researcher opens a statement and a few general questions to begin the conversation. Semi-structured interviews allow for additional questions to be designed to probe for information (Rabionet, 2011). Semi-structured interview facilitate for exchange of ideas between the interviewer and the interviewee (Galletta, 2012 while empowering the interviewer to change directions or ask for more details, clarification, etc. based on the participant's responses (Hardon, Hodgkin, & Fresle, 2004; Rubin & Rubin, 2005; Polit & Beck, 2010) and allow interviewee to express themselves verbally (Kallio, Pietila, Johnson & Kangasniemi, 2016). In semi-structured interviews, the questions are prepared as per the interview guide prior to the actual interview based on previous knowledge (Mason, 2004, Rubin & Rubin, 2005). The guide goes over the main topics of the study (Taylor, 2005), and provides a structure to focus and guide the following interviews. This also helps to ensure that the data collected from each participant is similar and comparable. The semi-structured interview format's versatility makes it a popular data collection method, especially since it can be utilized for both individual and group interviews (Kallio, Pietila, Johnson & Kangasniemi, 2016).

Usage of semi-structured interview is preferred over standardized interview because it allows the interviewer to explore the opinions and ideas of the interviewees, as well as probe deeper into their answers for additional information and clarification, especially when dealing with complex or sensitive subject matter. While interviewers are at liberty to change the words used in the questions, they cannot alter the meaning of the questions, since words can have different meanings for different respondents. The legitimacy and reliability of questions in semi-structured interviews don't depend upon the repetition of words, but rather the equivalence of their meaning. As long as the interviewer can convey the same meaning to different interviewees, then the answers can be standardized and compared (Barriball & While 1994).

A faulty design in the development of any research methodology will distort the final results (Denzin, 1989). Kallio, Pietila, Johnson & Kangasniemi (2016) suggest the following five phases for the development of semi-structured interview:

- Identify the prerequisites for conducting a semi-structured interview
- Utilize previously acquired knowledge
- Formulate a preliminary semi-structured interview guide
- Pilot test the prepared guide
- Present the completed semi-structured interview guide

### **Identifying the prerequisites for using semi-structured interview**

The first phase is the identification of the prerequisites for using semi-structured interviews. The goal of this phase is to ensure that using a semi-structured interview format is an appropriate choice to collect data for the selected topic. Semi-structured interview is a suitable data collection method for research because firstly it determines some areas of the phenomenon based on previous knowledge before the interview. The second reason relates with the suitability of semi-structured interviews in studying people's perceptions and opinions (Barriball & While, 1994). The third reason relates with the low level of awareness of the subjects on the topic of research. Finally, this format allows the participants more freedom in expressing meaningful opinions and perceptions, while still allowing the interviewer to maintain focus on the topic at hand (Kallio, Pietila, Johnson & Kangasniemi, 2016). This study began the development of a semi-structured interview by evaluating its suitability as a data collection method for the study. The investigations found it appropriate because the investigators could identify areas of research in contemporary literature, its suitability to understand interviewee's perceptions and opinions relating to the area of research through probing questions, interviewees' unawareness of the topic and a desire to gain different perceptions on the topic.

### **Utilizing previously acquired knowledge**

The second phase is based on an extensive literature review. The early stages of construction are empowered by demarcating relevant areas of interest that would be covered during the interview. These broad and general areas are then further separated into smaller, easily managed groups through merging similar themes accompanied with additional notes elaborating the reason for their inclusion, prior to formatting and editing of the question (Barriball & While, 1994). The aim of the second phase of retrieving and using previous knowledge is to acquire a complete and meticulous understanding of the area of research, which requires the researcher to critically think about the knowledge they have on the topic, and gain supplementary information if necessary. Previous knowledge creates a pre-determined framework for the interview (Kallio, Pietila, Johnson & Kangasniemi, 2016). It is dependent on preparations made prior to the interview (Turner, 2010) and it is vital for the researchers to have a solid understanding of the material they have researched (Rabionet, 2011). This critical insight can be gained via an extensive literature review that is centered around the topic under study (Krauss et al. 2009). Thus, literature review generates conceptual basis for the interview (Kallio, Pietila, Johnson & Kangasniemi, 2016). If literature knowledge is scarce or patchy, then additional, supplementary information could be used to better comprehend the theory by consulting with experts and seeking their understanding of the phenomenon under investigation. Experts are to be authority in the field (area of research) to describe the research phenomenon (Krauss, Hamzah, Omar, Suandi, Ismail & Zahari, 2009; Rabionet, 2011).

### **Formulating a preliminary semi-structured interview guide**

Formulation of the preliminary interview guide is the third phase of the development of semi structured interview. They're flexible in nature by supporting dialogue between interviewer and interviewee and change in the order of interview questions during an interview. Dialogue in semi structured interviews remains around the research topic (Kallio, Pietila, Johnson & Kangasniemi, 2016). Interview guide is a list of questions, used

as a tool for data collection purposes. The questions are framed using knowledge extracted from literature and experts in the field. Questions in the interview guide are formulated to retrieve the required data. The characteristics of well-formulated questions are that they are clearly worded and are participant oriented (Barriball & While, 1994). They are single-faceted and open-ended. A semi-structured interview guide is composed of two types of questions namely main themes questions and follows up questions. Main theme questions are arranged in progressive and logical sequence (Krauss, Hamzah, Omar, Suandi, Ismail & Zahari, 2009). They serve to break the ice and help the interviewee relax prior to the main questions being asked (Krauss, Hamzah, Omar, Suandi, Ismail & Zahari, 2009; Rabionet, 2011).

These queries cover issues that are both familiar to the interviewee, and are relevant to the research topic. Every participant is asked main theme questions that cover the main content of the research. Follow up questions are used to make the main themes easier for the participants to understand and to keep conversation focused around the research area. Follow up questions are supportive in maintaining the flow of the interview and in acquiring correct and maximum information (Barriball & While, 1994; Rabionet, 2011). They are pre-designed (Rabionet, 2010), based on literature reviewed and expert opinion. Pre-designed follow-up questions are beneficial in increasing the consistency of the subjects during the interviewing process (Krauss, Hamzah, Omar, Suandi, Ismail & Zahari, 2009). As an improvised follow-up, the interviewer can ask the interviewees to elaborate on some topic that has come up in the interview (Kallio, Pietila, Johnson & Kangasniemi, 2016). In semi-structured interviews, interviewers are given the choice of using probes. Probes are hints given to the respondents to encourage them to speak about their perceptions and experiences. Probing assures reliability of data through by getting the interviewee to clarify and elaborate on some pertinent issues that they raised. This can enable the interviewer to elicit valuable and complete information by further exploring their respondents' viewpoints and opinions, guiding them to remember something from their memory, and clarifying any inconsistencies that may arise during the interview.

Semi-structured interviews give choice of wording and use of probes for each question. Probing allows for interaction between the respondent and interviewer that builds a rapport and minimizes the danger of socially required answers (Barriball & While, 1994). Probing questions are verbal and non-verbal. Verbal probes include repeating or rephrasing the interviewee's words, expressing interest with verbal agreement or giving the impression that the researcher is aware of some relevant information. Non-verbal probing refers to maintaining silence and letting the participant to think out loud (Kallio, Pietila, Johnson & Kangasniemi, 2016).

The importance of an interview guide is to generate exclusive, intense, in-depth and spontaneous responses from the participants (Krauss, Hamzah, Omar, Suandi, Ismail & Zahari, 2009). Though the responses are based on personal feelings and experiences of participants (Rabionet, 2011) together with producing data that allow new concepts to emerge (Krauss, Hamzah, Omar, Suandi, Ismail & Zahari, 2009). The interviewer can prompt the participant for more descriptive answers by using what, who, where, when, and how questions, and in some cases, why. It should be noted that the participants often have a disposition towards being 'good' informants, which can affect the validity of their responses. The quality of the information, meanwhile, is a product of the interviewer's skill

and preparation, as well as the interview guide's quality (Barriball & While, 1994; Krauss, Hamzah, Omar, Suandi, Ismail & Zahari, 2009; Rabionet, 2011).

The study entered into the third phase of the development of semi structured interviews through extensive literature review. Construction of the interview guide commenced by framing the 1<sup>st</sup> set of questions (these questions will be used as tools for data collection) using knowledge extracted from literature and merging the main themes from different authors' perspectives. This was followed by transcription of interview data received (written form or recorded form) from 3 categories (mentioned in the 2<sup>nd</sup> phase) of experts to frame 2<sup>nd</sup> set of questions (these questions will also be used as tool for data collection) using knowledge extracted from experts in the field by merging similar themes. Data collected from literature reviewed and experts was grouped together according to prevalent themes to construct main theme questions. These questions were arranged on a progressive and logical level. Probes for main theme questions were also derived from literature reviewed and expert opinion.

### **Pilot testing the interview guide**

Pilot testing of interview guides is the fourth phase of the development of semi structured interview guides with the purpose to improve instrumentation (Rabionet, 2011). This phase assures the content covered, relevancy of the content communicated and identification of the need to reframe questions and test its implementation. This phase allows the researchers to make any necessary adjustments or changes in the interview questions (Barriball & While 1994). Testing provides vital clues as to the integrity of the research methodology as well as any potential ethical implications that the researcher needs to be aware of. The pilot test is carried out using three distinctive techniques; internal testing, expert assessment, and field testing. The guide is first evaluated by members of the research team, who attempt to remove any ambiguous or inappropriate questions (Barriball & While 1994). They also roleplay both sides of the interview to get a better idea of how the respondents would feel and identify any sources of potential bias, before sharing their insights about how it felt to be interviewed. A valuable preliminary assessment by supervisors was given and in which ambiguities, leading questions and general criticisms were discussed and corrections were made in the interview guide (Barriball & While 1994).

This draft that passes internal review is then assessed by external experts who aren't involved with the research directly. Expert assessment relates to inviting specialists (they are not involved in the research) to critique the preliminary interview guide. To endorse the appropriateness and comprehensiveness of content and its relationship with study aims and objectives, interview guide expert assessment is advantageous. They also judge the appropriateness and comprehensiveness of the questions as they relate to the interview's topic and purpose. They can provide valuable guidance about the wording used, the order of the questions, whether the participants would be comfortable answering the questions, and if anything in the interview schedule could influence the responses. Expert assessment remains an invaluable part of the pilot testing process for the development of interview guides (Barriball & While, 1994).

For expert assessment the researchers invited three specialists through emails to critique the preliminary interview guide. The experts accepted the invitation and agreed on providing critique on the preliminary interview guide. Together with the aims and

objectives of the study the preliminary interview guide was mailed to them. Experts' guidance relating relevance and arrangement of questions in the preliminary guide was sought through online meetings. Based on the valuable feedback of experts, modifications and adjustments were made in the preliminary interview guide. Researchers should be considerate of whether any of the questions are too complex or ambiguous, and if their sequence is going with or against the respondents' perceptions and expectations, and the effect this could have on the responses. The pilot phase enables them to make informed adjustments to the guide prior to conducting the actual interviews (Barriball & While, 1994).

Field-testing technique is commonly used in the development of a semi-structured interview process. It refers to testing of preliminary interview guides with the potential study participants (Barriball & While, 1994; Krauss, Hamzah, Omar, Suandi, Ismail & Zahari, 2009). The field-testing phase involves conducting the interview using the previously developed guide with a small group of participants to ensure intelligibility (Barriball & While, 1994), increase the relevance of the questions (Krauss et al., 2009) and highlight various perceptions and experiences of participants (Barriball & While, 1994). Field testing report formulate way forward for the order and form of questions, effectiveness of follow-up question to improve the exposure of interview guide (Krauss et al., 2009). It also highlights if the time given to each interview is appropriate, and if there are any other final changes that need to be made to fix some previously undiscovered design flaws.

### **Presenting the complete semi-structured interview guide**

The aim of the fifth and last phase is to produce a clear, complete and logical semi-structured interview guide for data collection. The presented guide reflects and is dependent on the prior phases of the development process (Krauss et al., 2009). It responds to the aims of the study (Barriball & While, 1994) and provides guidelines to other researchers for its usage (Krauss, Hamzah, Omar, Suandi, Ismail & Zahari, 2009). A complete semi-structured interview guide was presented in the present study for an overall expert opinion from the authority in the subject comprising national and international experts for their approval, which was later used for data collection for the study and for the usage of other researchers conducting similar types of study.

### **Procedures and Measures**

In the present case, the process of literature review began with searching for relevant material from Higher Education Commission (HEC) online library, Google Scholar, Z library, on campus library and requesting two main publishers in the town for the availability of relevant books. Published research articles, reports, book chapters and eBooks found to be appropriate with the topic of investigation were downloaded and organized in different folders according to years of publication. For books found in hard copy relevant chapters were photocopied and a folder was maintained for that too. The organization of literature was followed by extensive reading, relevant ideas were highlighted and paraphrased. Literature was reduced into themes by merging ideas of similar nature, which were to be used to frame questions for interviewing experts in the process of development of semi-structured interview.

Three categories of experts were interviewed in the process of development of semi-structured interview. The first category of experts consisted of individuals having PhD in social sciences (e.g. morality, psychology, and education), knowledge of the phenomenon under investigation, teaching at a university for at least three years and researchers with some publications to their credit. A total of 15 experts were contacted through email including eight researchers from America, Canada, Australia and Europe and seven researchers were from Karachi, Lahore and Islamabad. All the experts were contacted through email stating a brief introduction of the researcher and inviting the expert to state their availability to be interviewed.

Abstract of the research proposal and interview questions were shared with the experts as attachment. From a total of eight international experts, four of the experts did not reply to the mail sent by the researcher, two agreed to perform the task. The researchers finalized time and date for the interview, but due to unexpected electric power and internet failure at the end of the researcher, the expert could not be interviewed whereas the last one agreed and was available for the interview. From a total of seven national experts, three did not reply to the mail at all, one agreed to the interview, but did not avail to be interviewed whereas three were available and were willing to be interviewed. These experts were interviewed for 30 minutes on the questions derived from literature reviewed.

The second category of experts consisted of teachers teaching from grades 6 -8 in school A and B. The characteristics of the second category experts were that they were maths or science teachers, had minimum three years of experience teaching in the particular school, had minimum of three years of teaching experience in teaching maths or science and obtained a B. Ed degree in education. The principal of school "A" advised to see the deputy principal for all the necessary arrangements to interview teachers. The deputy principal was presented with a letter from the university and a researcher's letter to understand the authenticity of research activity. Deputy principal directed me towards the coordinator of the middle section who promised to make necessary arrangements to facilitate the interviewing process. These arrangements included sorting out all math and science teachers to be interviewed. Date and time were fixed with mutual understanding between the researchers and the coordinator to interview selected teachers. The researchers had prepared seven key questions derived from literature reviewed. The investigators administered this process and collected the transcripts from the teachers at the completion of the writing process. All the written responses of teachers were typed and information was saved on computer. The third category of expert was principal of school "C" possessing the characteristics of being in the role of principal for at least five years, and had an M. Ed degree. The principal was interviewed face-to-face for 30 minutes on the questions derived from literature reviewed.

A well-planned protocol has a positive impact in the next phases of the interview process. Interview of the experts were conducted following interview protocols suggested by Rabionet (2011) such as starting interview with a brief introduction of interviewer, introduction of research, statement of confidentiality, consent of interviewee to participate in the interview, option to withdraw, use and scope of the results, maintaining a rapport between interviewee and interviewer, and to elicit truthful comments from the interviewee.

Gillham (2000) had noted that writing during the interview can be distracting both for the interviewer and interviewee, it can break the flow of interviewee if interviewer will ask to

repeat what has been said, while writing interviewer has to be selective so it's difficult to decide on the spot what is important and what is not and interviewees seem to be in full flow when tape recorded. Gillham (2000) further suggests that researchers cannot afford to miss anything of the interview. Therefore to get a detailed account of the interview I asked the experts' permission to record the interviews which was granted as recordings can be listened to again and again and researchers can discern about it. All the interviews were tape recorded with the permission of experts which was sought prior to conduction of the interview. To facilitate the interview process the investigators wrote all the questions on a paper which was handed over to experts to continue sharing their perceptions/opinion on the said questions without any intervention. Rabionet (2011) asserts that in the process of development of semi-structured interview guides, methodological guidance and feedback should be obtained from the other qualitative researchers.

## **CONCLUSION**

The results of the semi-structured interview methodology are dependent on the skills with which the interviewer improvises and handles complex decisions. They need to overcome the challenge posed by the need to modify each interview to ensure the data obtained is accurate, complete and standardized enough to be comparable and reliable. This requires the researchers to be both extensively trained and prepared. For interviewer training, the first step is literature review: Valid and comprehensive data could be obtained if the interviewer has the knowledge of the subject domain that is being explored. Interviewer's competence in handling the schedule should be facilitated by several informal practice sessions with professional experts. The audio tapes of these 'dry runs' should be used as self-evaluation tools to raise questions and queries to be discussed with the colleagues. The careful and methodical analysis of these taped interviews highlighted various issues, including leading questions and inappropriate probing, or what is known as the 'subtle manifestations of the persuasive urge' (Barriball & While, 1994).

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