

Creativity in ensemble performance: A case of intense co-performer empathy

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The psychology of optimal experience has received considerable research attention in the post-war years as researchers have sought to understand what makes us happy, and how we can be happier. A number of frameworks examining optimal experiences have been developed, including peak experience (Maslow, 1959), flow theory (Csikszentmihalyi, 1975), and peak performance (Privette, 1981). A fourth framework, Strong Experiences of Music (SEM; Gabrielsson, 2001), has specifically explored people's strongest experiences of both listening and performing. However, despite studies agreeing that optimal experiences of music performance are important, desirable, and motivating for musicians, there is very little research in this area that is specific to ensemble playing.

Ensemble playing is an important area of music psychology research, because almost all musicians rehearse and perform music with others at one time or another in orchestras, choirs, and small ensembles. A fundamental difference between solo and ensemble experiences of performance is that ensemble performance involves social and musical interaction between co-performers. It seems likely, therefore, that these interactions will influence ensemble musicians' peak performance experiences. In recent studies exploring chamber musicians' optimal experiences of performing together, players have spoken of achieving a collective state of mind, described variously as "striking a groove" (Berliner, 1994), a "group flow state" (Sawyer, 2006), and "empathetic attunement" (Seddon, 2005). This collective state of mind seems to be the key difference between solo and ensemble peak experiences of performance.

Over the last few decades, empathy has received considerable research attention as a means of understanding a range of psychological phenomena and is fast drawing attention within music psychology. In the area of empathy and performance, Myers and White (2012) recently explored the role of empathy in the performing experiences of nine professional musicians. Although the study did not specifically examine co-performer empathy, participants described it as an essential part of performing well together. More recently, Haddon and Hutchinson (in press) have explored the role and function of empathy in piano duet rehearsal and found that empathy was an important facilitative tool in the construction of shared concerns, reinforcing the duo partnership, pre-emptive conflict resolution, and creating a "safe space."

These studies suggest that empathy plays a key role in the working processes of ensemble musicians and may be central to our understanding of social and musical interaction within performing ensembles. However, the role of co-performer empathy in ensemble performance and its potential connection to ensemble musicians' peak performance experiences have yet to be investigated. If co-performer empathy is important for the long-term functioning of an ensemble and may be related to ensemble musicians' peak performance experiences, then developing an understanding of co-performer empathy in ensemble playing is essential.

FOCUS GROUP STUDY

In order to explore expert ensemble musicians' experiences of co-performer empathy, a focus group study was conducted with five established Western Art ensembles from around the UK. The aim of the study was to explore how ensemble musicians themselves describe their experiences of working and performing together, with particular reference to their optimal experiences of performance and co-performer empathy.

The ensembles were interviewed in their respective groups: a wind quintet, a vocal duo, a contemporary woodwind trio, a mixed piano trio, and a string quartet. No brass ensemble was available for a group interview so three members of two brass ensembles were interviewed individually. All participants had been working together in their groups professionally or semi-

professionally for a minimum of three years. Interview questions were based, in part, on existing studies on empathy in performance (Myers and White 2012), peak performance (Privette 1981), and SEM (Gabrielsson 2001).

Analysis revealed that expert ensemble musicians perceived their peak performance experiences to be a result of co-performer empathy, components of flow, and two performance conditions: repertoire choice and environment. Co-performer empathy itself consisted of three main components: a *shared approach* to interpretation and to working together, an *intentional awareness* of how colleagues are operating on both a musical and a practical level, and a *special connection* between players. In addition, it was found that co-performer empathy sometimes led to an ensemble achieving *spontaneous interpretative flexibility* during performance.

Shared Approach: A Pre-requisite for Co-Performer Empathy

It was found that the ensemble musicians felt that a shared approach to both musical interpretation and to working together was a pre-requisite for co-performer empathy. As far as interpretation went, participants emphasised the importance of a shared approach to expressive detail within the music, and an agreement that the music should take priority over all else.

There were three distinct aspects of a shared approach to working together. First, it was essential for all players to agree on a style of working. Examples included whether rehearsals should be democratic, whether to work in short bursts or at length, and how blunt players should be. Second, a shared level of commitment to the ensemble was considered vital. If players felt that one colleague was contributing less, then resentment could build. It seems likely, therefore, that an equal commitment is required from all players for an ensemble to function at the highest level. Third, shared goals for the ensemble were essential. This was probably because goals affect an ensemble's approach to rehearsals, the kind of gigs they play, how often they rehearse, or how much time they dedicate to the ensemble. A shared approach both to musical interpretation and to working together was, therefore, a pre-requisite condition for achieving co-performer empathy.

Special Connection: 'Clicking' together

The second component of co-performer empathy was special connection. A variety of vocabulary was used to express this idea: "gelling," "exactly synchronised," "an intimate connection," "in harmony," "eyes," "ears," "radar," "instinctively aware," "sympathy," "clicking," "locking in," "getting into each others' heads," "being able to read the other person's mind." No participants used the word empathy before being asked direct questions about empathy during the interviews, but all agreed either that empathy was a good description of the same phenomenon, or that they understood the term in the same way.

Intentional Awareness: Perspective-Taking

The third component of co-performer empathy was an intentional awareness of how one's colleagues are operating on either a practical or a musical level. This requires a degree of perspective-taking in order to understand the difficulties they may face. On a musical level, players described the importance of an intentional musical awareness of the different expressive ideas and roles embodied by each player at any point within the music. As one flautist explained, being unaware of other parts and retaining only an individual focus results in "bulldozing through."

Spontaneous Interpretative Flexibility: Moments of unplanned ensemble creativity

Spontaneous interpretative flexibility (SIF) was found to be a product of co-performer empathy. This was defined by participants as the spontaneous production of novel expressive variations in performance and was described by all as desirable.

Changing stuff, changing tempos, changing rits, changing dynamics... That's part of

performing. I mean, if it was the same every time it would be really boring. And that's kind of the joy of working with a group for a long time. (Flautist, Piano Trio)

All of the ensembles described SIF as something they strived for in performance and it was a feature of almost all of the descriptions of optimal experiences of performance.

To summarize:

- Co-performer empathy appears to be an essential feature of ensemble musicians' optimal performance experiences.
- Co-performer empathy involves a **shared approach**, a **special connection** between players, and an **intentional awareness**.
- Spontaneous interpretative flexibility (SIF) was a feature of peak performance experiences.
- SIF in ensemble performance appears to be related to the process of co-performer empathy

CREATIVITY IN ENSEMBLE PLAYING

The production of novel variations in performance has been explored. Sloboda (1986) has suggested that “expert performance is often characterised by the fresh reconstruction of performance parameters... on every occasion.” Music is a complex-patterned material offering a lot of scope for variability in performance. Variability of musical interpretation in expert performance arises in the moment rather than being pre-planned, and can, therefore, be characterised as “spontaneous.” An expert performer can approach a performance with a degree of what Sloboda terms “optionality.” That is, he or she can choose spontaneously during a performance whether to reproduce a previous interpretation, or whether to produce an interpretation that is wholly or partially different in expression. This can be achieved through the spontaneous variation of a number of performance parameters, including dynamics, tempo, articulation, fingering, timbre or intonation. In solo performance, SIF is a relatively simple process involving the soloist spontaneously deviating from an established, practised interpretation and producing some form of novel variation. However, in the context of ensemble playing, the phenomenon becomes more complex by virtue of its becoming a group process involving inter-individual co-variation. SIF in ensemble playing is defined here as the spontaneous production of novel variations differing from an established interpretation, produced by an ensemble whilst playing together.

All of the professional ensemble players interviewed as part of the focus group study spoke of SIF as an important and desirable aspect of their performing experiences. These views support evidence from previous research on the production of novel variations in ensemble performance. In his book of interviews with the Guarneri Quartet, Blum (1986) explored this phenomenon. The players described a sense of spontaneity and a degree of improvisation in their performances as being of crucial importance. Michael Tree described the quartet's approach to performing in terms of flexibility:

The playing of quartet music is... an organic process. Each of us is influenced by constantly fluctuating circumstances. Each moment of our playing is conditioned by what has just occurred or by what we think is about to occur. It remains creative because just about anything can happen. (Blum, 1986, p. 20)

Since the results of the focus group analysis revealed SIF to be related to co-performer empathy in some way an observational study was designed to examine this relationship more closely.

This observational study was driven by two research questions: What is the process of SIF in expert ensemble playing? How is it related to co-performer empathy? The participants were the members of an expert, established string quartet who had been playing together for over three years, had won several prestigious prizes, and held a fellowship at the European Chamber Music Academy. A rehearsal and a performance of Schubert's *Quartettsatz* were video-recorded within the space of a week. No external observer was present during the rehearsal recordings. Video footage of

the rehearsal and the recital performance of the same piece were burned to DVD and given to the quartet members along with an instruction pack and a video recall log sheet. A code-specific video recall method was used in which participants were asked to identify and comment on three different kinds of moment in the video recordings (intentional awareness, special connection, and SIF). The researcher then met with each participant individually to discuss their responses, to view and describe in more detail the kind of moments they had identified for each code, and to explain how they thought the codes fit and related within the workings of their ensemble. These meetings were audio-recorded and then transcribed.

The participants' recall logs were read, re-read, explored, and compared. Any similarities and differences between participants relating to each code were noted, as well as any overlap between codes. A thematic analysis was then conducted on the interview transcripts to identify any common themes or ideas. The recall logs and interview transcripts were then examined side by side, and considered in relation to the study's aims and research questions.

A Perceived Connection Between Co-Performer Empathy and SIF

Instances of perceived SIF were coded by all participants in the recall logs. Table 1 shows the number of times SIF was coded by each participant.

Table 1. Frequency of SIF coded by each participant during rehearsal and performance

	Rehearsal (91:01)	Performance (09:03)
Violin 1	0	5
Violin 2	1	1
Viola	1	2
Cello	2	6

According to the recall log results, all participants identified more moments of perceived SIF during the performance than during either of the rehearsals. This supports evidence from the focus group study where participants suggested that SIF was a central feature of peak performance experiences, as well as evidence from existing literature by Sloboda (1986) and Davidson (1997). During their recall interviews, the players each stated that SIF was something that they as an ensemble strived for in performance.

There were a several examples of SIF being coded alongside a component of co-performer empathy by the same performer.

Table 2. Frequency of SIF being coded with Intentional Awareness and Special Connection by all players

	Rehearsal 1 (90:01)	Performance (09:03)
Intentional Awareness with SIF	3	7
Special Connection with SIF	1	3

There were more examples of SIF being coded alongside intentional awareness in the performance than in the rehearsals. There were three instances of SIF being coded in combination with special connection during the performance, and one instance of them being coded together in the rehearsals. The relatively high incidence of SIF being coded alongside both intentional awareness and special connection in the recall logs, particularly during the performance, suggested that the players perceived there to be a connection between experiencing co-performer empathy and a moment of SIF.

The Process of SIF

Figure 1 shows the model of the process of SIF in expert ensemble playing, determined by the analysis of the recall logs and interviews.

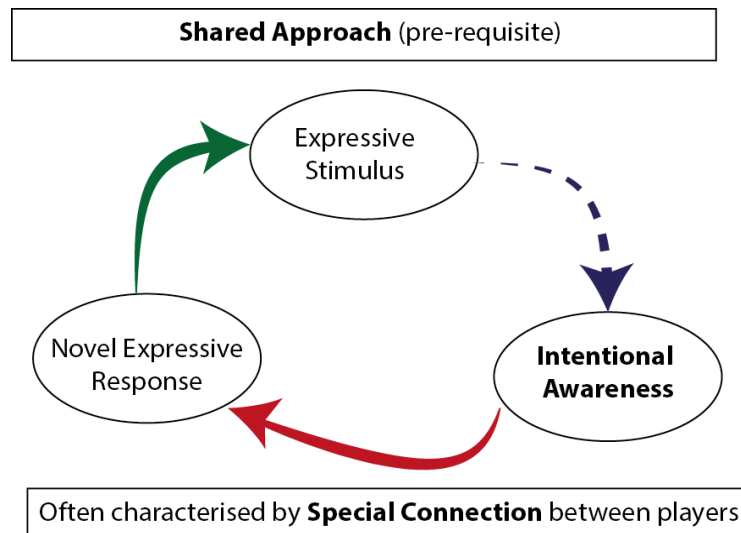


Figure 1. SIF in expert ensemble playing

The model involves the two components of co-performer empathy (intentional awareness and special connection) and a prerequisite shared approach, as identified in the focus group study. The process was determined from the recall logs and interviews in which the players described the way the different components were used in order to achieve SIF. SIF in performance seems to arise as a result of a two-step empathic process involving an intentional awareness of the expressive intentions of one's co-performer(s) followed by an intentional or instinctive response. It was often (though not always) characterised by a special connection between players.

The process begins with an intentional awareness, a sort of musical perspective taking, in which a player will shift the focus completely away from her own part and force herself to listen to another player's part completely. The cellist gave an example of this kind of perspective-taking in a moment of intentional awareness, special connection, and SIF that she had logged during the performance:

There's a bit just after the double bar, and the first time we play it the first violin goes really quiet and then goes back to... the opening so it kind of just falls into that. But the second time we do it, it goes *subito forte*, and we all come crashing in. And so in those few bars before the crash when [the first violinist] is playing on her own, we all have to be in the zone as they say, and essentially playing her part in our mind so we can all just come in... I don't think you could be sitting there just counting the bars' rest because it wouldn't have the same feeling as if you were actually totally involved, even though you're not playing. (Cellist, string quartet)

The act of musical perspective taking here is that of the three lower players intentionally imagining playing the leader's part with her. This mental process akin to empathic perspective taking allows players to identify the musical or expressive intentions of a colleague, through an intentional awareness, and to then respond, creating a moment of SIF. It seems to be similar to Seddon's (2005) notion of “decentering” in that it requires the players to shift from an individual focus in order to be intentionally aware of the actions of their co-performers.

It is necessary not only that players identify their colleagues' musical intentions, but that they also respond accordingly – the second step in the process. As the first violinist observed: “You can't be aware of what someone else is doing on a musical level and then not respond. You wouldn't purposefully not respond would you?.” All players agreed that there was a response, but there was no conclusive consensus as to whether the response was intentional or instinctive, with all

participants suggesting that perhaps it was a bit of both depending on the circumstances of a particular moment or of a particular performance. Responding in the moment to the novel expressive variation produced by one player completes the process of SIF in ensemble playing.

SIF in performance seems to arise as a result of a two-step empathic process involving an intentional awareness to identify the expressive intentions of one's co-performer(s) and a response. If this is the case, parallels can be drawn with the process of empathic responding more generally. One of the longest-standing debates in the field of empathy research has been over whether empathy is primarily a cognitive or affective phenomenon. More recently a movement has begun towards the wide acceptance of empathy as both a cognitive and affective process. In simple terms, the argument made for empathy as a dual cognitive-affective process is that it is impossible to have an instinctive, affective reaction to an individual's suffering without first having undergone even a subconscious cognitive process to evaluate that individual's state in order to be able to respond appropriately (Baron-Cohen, 2011). The process of empathy, then, is a two-step process involving cognitive perspective taking to evaluate an individual's state, followed by an appropriate affective response to that state. Baron-Cohen (2011) has defined empathy as "our ability to identify what someone else is thinking or feeling, and to respond to their thoughts and feelings with an appropriate emotion." There are clear similarities between this process of empathy and the process of SIF in ensemble playing.

Just as in the process of empathy, the results of this study suggest that is impossible to respond to a co-performer's expressive stimulus without first having some kind of intentional awareness of how that co-performer is operating on a musical level. Intentional awareness allows players to identify or anticipate their co-performer's expressive intention and respond to it, to create a moment of SIF. The parallels that can be drawn between the process of SIF and the process of empathy more broadly, further suggest a close relationship between SIF and co-performer empathy. Figures 2 and 3 show the similarities between the two processes:

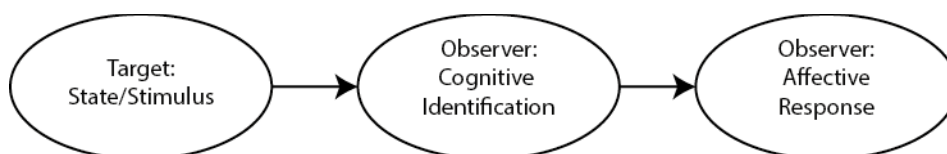


Figure 2. The process of empathy (Baron-Cohen, 2011)



Figure 3. The process of SIF in ensemble playing

Since there appear to be striking parallels between the process of SIF in ensemble performance and the process of empathy more generally, it may be plausible to consider SIF as a special, musical case of empathy.

CO-PERFORMER EMPATHY AND SIF

It seemed likely from the results of this study that SIF is a case of intense co-performer empathy. Figure 4 shows the process of co-performer empathy.

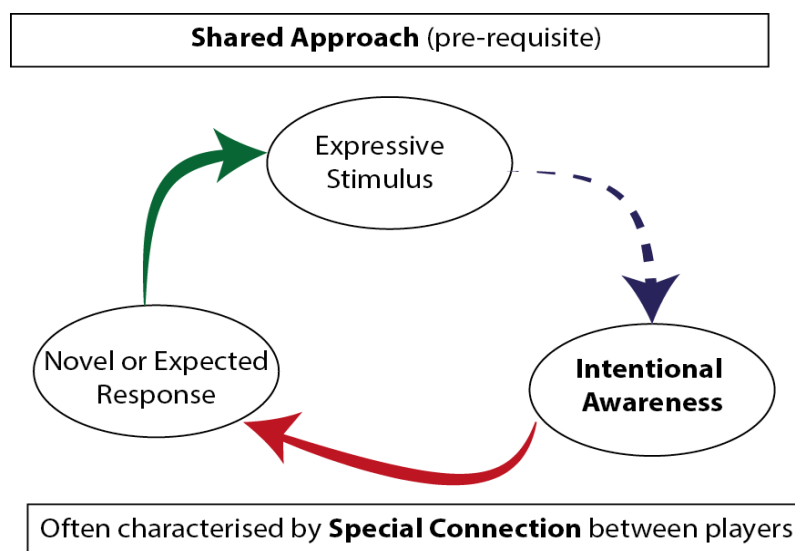


Figure 4. The cyclical process of co-performer empathy/SIF

Expert ensemble performance seems to involve a continually cycling process of co-performer empathy. At the end of a single cycle, a player's response becomes the new musical/expressive stimulus and the process is repeated. Whether or not a co-performer's empathic response is classed as an example of SIF depends on whether the response is expected or novel.

A shared approach is still an essential pre-requisite for both co-performer empathy and the more intense case of SIF. It is imperative that players still share the same vision of musical interpretation, because a disagreement over how the music should be interpreted could end in disaster. Intentional awareness from all players is also vital. It is important that players are sensitive to how their colleagues were operating on a musical level, to avoid "bulldozing" through the music, ignoring the other players' parts. However, when an ensemble strives for SIF, both the shared approach prerequisite condition and the intentional awareness component of co-performer empathy take on a greater importance. The production of novel expressive variations in the moment requires greater intentional awareness since actions are not pre-planned, and the response to a player's expressive variation (stimulus) by other players has to be based on a shared approach to musical interpretation.

The cyclical process of co-performer empathy should occur throughout a performance. Players must constantly be intentionally aware of the expressive actions or intentions of their colleagues in order to be able to respond appropriately to them throughout the performance. If the expressive actions are pre-planned, then the response is more predictable. However, if one player produces a novel expressive variation in the moment, other players must be aware that this has occurred, and adjust their response accordingly. In this way, ensemble performance is a constantly evolving process of empathic responding through which there is the optionality for a piece to be performed differently every time. Players may choose to adhere strictly to a pre-planned interpretation, reproducing a previous performance as closely as possible. They may create an entirely new interpretation, requiring an intense process of co-performer empathy: SIF. They may choose to use a combination of these two extremes, in places adhering to a pre-planned interpretation, and in other places creating moments of SIF. In all cases, the process of co-performer empathy is essential and must be present throughout.

To return to the research questions: What is the process of SIF, and how is it related to co-performer empathy? SIF involves a cyclical process of identification and response. It is based on a pre-requisite Shared Approach. It is often characterised by a Special Connection. It can be considered a case of intense co-performer empathy.

HEART-RATE STUDY

Up to this point, the empirical studies had investigated co-performer empathy using only self-report measures. The next study was designed to combine self-report measures of empathy with a physiological measure. This was an exploratory case study. The hypothesis was that moments of self-reported empathy during ensemble playing would be associated with low cardiovascular arousal (based on work by Krebs, 1975, and Levenson & Reuf, 1992). The research question was: Is there an association between ensemble musicians' heart rates during performance, and their self-reported experiences of co-performer empathy? The aim of this study was to find further evidence in support of the process of co-performer empathy and its relationship to SIF.

Two professional violinists ($M=26$) who played together as part of an expert, established string quartet were recruited. They prepared the same piece of solo Bach (B minor double from Partita no. 1). The B minor double was chosen for its continuous quaver movement, to minimise the effect of physical exertion on the heart-rate data due to the musical material. The violinists performed the piece in unison to control for the effects of the physical exertion due to different musical material on heart-rate. There were three performance conditions: Violin 1 leading, Violin 2 leading, and no designated leader. For each condition the violinists were instructed to give a musically expressive performance and to synchronise as closely as possible in terms of tempo, dynamics etc. The video material was burned to DVD and given to the violinists with an instruction pack. Code-specific video recall to identify moments of self-reported empathy: Intentional Awareness, Response, Special Connection, and SIF response.

The nature of the performance tasks involved in this study – two violinists playing solo Bach in unison with very limited rehearsal time – was somewhat artificial. Solo Bach would never usually be played by two violinists in unison. In the real world a chamber ensemble would almost always have more than 15 minutes to rehearse a piece before performing it together for the first time. These artificial conditions, were reflected in the recall logs, in that most of the responses coded in moments of empathy were regarded as flexible (F), rather than expected (R). Violin 2 suggested that perhaps it is better to think of response in terms of degree of flexibility rather than whether it is “flexible” or “not flexible.” He was consistent with his coding and this reflected his view on the place of flexibility in this study.

Commenting on the process of SIF in the broader context of ensemble playing he was able to articulate a process:

There's ultimately an infinite loop going on... You gather whomever you want to play with and then you show them it's about to happen, and then whilst you're about to do it, and even whilst you're starting doing it, you're judging “are they with me? Is this actually happening?” and if you get a redoubled response, then you might do it more than you originally intended. If you know that they're with you then you'll just do as you wanted, and if they're not paying attention, if their heads are in the part or if you just don't feel their presence, then you're going to scale back. So...even when you're trying to lay it down, you're ultimately being flexible. In a way, the person who ends up leading is the one who is the least skilled... because the one who's the least skilled at having a clue what's going on is the one who's going to limit the possibility of what could happen. The reason I say it's an infinite loop, is because then from the person-who's-following's perspective, they're going “Yeah OK I'm with you, but I'm giving you this. Are you with me?”. So then I have to go, “OK, yeah, I do recognise this, and I'm doing this in response to your doing that, in response to me doing my thing” you know. This all happens in the moment, several layers deep.” (Violin 2)

The point that this violinist raises about the least skilled member of an ensemble being the one who “ends up leading” suggests that the success of the empathic process is limited by the ability of the

ensemble's weakest member. Here, "weakest" indicates the member of the ensemble who is least skilled in being able to transmit, identify, or respond to the other players' intentions. This could be a result of lesser technical skill, as suggested in Davidson and Good's (2002) student quartet case study where the observations suggested that the members of the quartet were too focussed on their own parts and the technical challenges contained there, and as a result could not spare attention to work on expressive ideas. In a similar way, ensemble players' technical expertise might also influence their ability to divide their attention, looking up from their parts to direct their attention outwards and onto the intentions of their co-performers. It is possible that it may not only be technical expertise but also development of the skills involved in the process of co-performer empathy. After all, many concert soloists are highly skilled, technically proficient musicians, and yet some of these gifted solo performers are insensitive ensemble musicians. This suggests that an ensemble's success in producing expressive, novel performances could be limited not only by the individual technical expertise of the players, but also by how well each player within the ensemble is able to participate in the ongoing, cyclical process of co-performer empathy during performance.

CONCLUSIONS

SIF has been identified as a feature of ensemble musicians' peak performance experiences. They have described it as desirable and something that they strive for in performance. SIF can be considered a case of intense co-performer empathy. If it is the case that an ensemble's success in producing expressive, novel performances depends on each player's ability to participate in a cyclical process of co-performer empathy throughout a performance, this presents important practical applications for chamber music pedagogy. Whilst trust and familiarity both play critical roles in the development of a successful chamber ensemble, these are developed gradually over time spent rehearsing and performing together. However, it may be possible for techniques for the strengthening of the sharing and identification of a player's intentions to be developed and taught.

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