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The mirror neuron paradox: How far is *understanding* from *mimicking*?

Elias L. Khalil

Department of Economics, Monash University, Clayton, Victoria 3800, Australia

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ABSTRACT

The same mirror neuron system (MNS) is behind both *understanding* and *mimicking*. Mirroring *per se* is the spectator's simulation of the emotion/action of the principal. While the understanding process usually involves the attenuation of original emotions, the mimicking process often leads to escalation and mob psychology. What is paradoxical is how the same primitive, mirroring, gives rise to divergent processes. To solve the paradox, this paper distinguishes between two kinds of evaluations: *rationality* and *niyya*. The rationality axis evaluates whether the action is proper (rational) or improper (irrational), while the *niyya* (an Arabic word for "faith" or "trustworthiness") axis evaluates whether the motive is virtuous (wellbeing-supporting) or malicious (wellbeing-threatening). The interplay of the two-axes promises also to explain the differences among four kinds of fellow-feeling.

1. Evaluation of emotion/action: pitch vs. motive

David Rivas Morales, a 40-year old house painter, met a senseless death on the 20th of July 2007:

> An angry Texas crowd has beaten and killed a 40-year-old car passenger after a driver injured a young girl near the site of a busy local festival.
>
> Police said the driver of the car had stopped to check on the health of the girl, said to be aged three or four. But when the passenger got out to see how she was, he was set upon by a group of up to 20 people before being left lying in a car park, police said. The girl was hit at low speed and was not seriously injured.
>
> The incident happened near Austin, Texas, as crowd of between 2000 and 3000 people gathered for the annual Juneteenth festival, which commemorates the freeing of American slave [sic] ("US crowd beats passenger to death," www.BBC.com, 20 July 2007).

An Austin policeman observed: "It's that same crowd mindset of being one face in 1000. Things get out of hand pretty quickly and people don't have the good sense to stop" ("US crowd beats passenger to death," www.BBC.com, 20 July 2007).

E-mail address: Elias.khalil@monash.edu.
URL: http://www.eliaskhalil.com.

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How did the mob lack "the good sense to stop"? There are at least two connotations of the statement—assuming that the mob has the right to act as the jury:

1. The spectators lacked the good sense of *self-command*; i.e., the spectators over-reacted given that the girl was not seriously injured.
2. The spectators lacked the good sense of *understanding*; i.e., the spectators failed to examine the motive of the person who caused the girl's injury.

This paper focuses on the latter connotation: the good sense of understanding. This sense involves two steps: first, the spectator *simulates* the observed action/emotion, viz., the pain and resentment of the child or the child's caretaker. Second, the spectator *evaluates* if the resentment is well-deserved; i.e., is the object of resentment blameworthy or, put differently, is Mr. Morales motivated by arrogance, as judged by the way he drove, or, worse, by malice towards the child?

The second step involves what is called here "*niyya* evaluation." To ask about one's *niyya* – an Arabic word that denotes roughly "faithfulness," "intention," or "trustworthiness" – is to ask whether the observed action is based on good will, which supports wellbeing, or bad faith, which undermines wellbeing. Wellbeing is the objective function of the principal–whether a person or a community bounded by implicit or explicit commitment. Spectators have failed to engage the understanding process, i.e., to engage the second step and evaluate Mr. Morales' *niyya*.

Note, understanding involves rudimentary comprehension, which is not different from how scientists comprehend the movement of billiard balls according to causes and effects. Aside from comprehension, understanding involves evaluation of the *niyya* of the principal's emotion/action. Further, emotions and actions, as shown below, lie along a continuum and, hence, this paper does not distinguish them in a fundamental way.

It might be better, in some social contexts, to mimic than to understand the emotion/action of others. In a party, one should relax and mimic the joyful emotions of others rather than understand them. Mimicking also consists of two steps: First, similar to understanding, spectators *simulate* the action/emotion of the observed. Second, unlike understanding, spectators use the simulated emotion/action to evoke their own emotion/action. So, mimicking does not involve the *evaluation* of the motive. In parties, people consume alcohol probably to dull the understanding pathway. Otherwise, the party would be a discussion club rather than a dancing club.

In the case of Mr. Morales, mimicking obviously was misplaced, where the mob did not engage the good sense of understanding Mr. Morales' *niyya*. But *why* does the mob generally disengage the good sense of understanding? It could be, following Girard's (2004) mimetic theory, spectators resort to violence in the search for a sacrificial lamb to attain communal harmony, as spectators try to contain their own frustrated desires and envy. It is outside the scope of this paper to study "why" mob psychology lacks the good sense of understanding. The focus is rather on "how" mob behavior is misplaced. Also, it is not the focus here to study other factors – e.g., weather, mood, familiarity, etc. – that may escalate mimicking. The focus here is on mimicking insofar as it affords the necessary condition of mob behavior.

The aim of the paper is to explain the difference between understanding and mimicking. The difference is actually a paradox: how could the same primitive, let us call it "mirroring" or "simulation," give rise to understanding as opposed to mimicking? Note, this paper employs the terms "mirroring," "simulation," and "fellow-feeling" interchangeably. The three terms denote the primitive, i.e., the generic phenomenon of replication. In the neuroscience literature (Fogassi, 2010), "mirroring" is used as the primitive. Gallese (2007), Goldman (2006) and Gallese and Goldman (1998) use "simulation" as the primitive.

We cannot discuss fellow-feeling (simulation) without starting with Adam Smith's *The Theory of Moral Sentiments* (TMS, 1976). Smith largely defines "fellow-feeling" as "sympathy," where sympathy is approval of the *pitch* of the emotion/action of the observed. The pitch evaluation judges whether the emotion is proper in the sense of efficiency or rationality. The pitch evaluation forces the observed, if he or she wants the spectator's approval (sympathy), to lower the pitch to a proper level, what Smith calls the virtue of "self-command." Self-command compels people to avoid myopic actions—a mechanism that leads people to avoid dynamic inconsistency or quasi-hyperbolic discounting (Khalil, 1990, 2010).

Smith (1976, pp. 10–16) recognized the primitive of fellow-feeling, such as the pleasure of reading a book together, watching rope dancers, and squeamishness. He called them "mutual sympathy" in the sense of "correspondence" of sentiments: People "enliven" their joyful sentiments when they find spectators with corresponding sentiments. The interaction with people with similar joyful sentiments adds "additional vivacity" (Smith, 1976, p. 14). Smith (1976, p. 52) also acknowledged mimicking as "peculiar sympathy," when he described how low-rank people mimic and adulate the rich and powerful, which is at the origin of ambition, jealousy, invidious emotions, and authority (Dupuy, 2006; Khalil, 2002, 2005).

While the focus of this paper is not on Smith's theory, it is helpful to identify what is missing in Smith's theory. Despite the fact that Smith recognizes the primitive fellow-feeling ("mutual sympathy") and mimicking ("peculiar sympathy"), they are insufficient to identify what *differentiates* understanding from mimicking, i.e., to solve the paradox. To wit, Smith's notion of sympathy cannot fully capture understanding; that is, Smith's beginning notion of sympathy in Part I of TMS involves the evaluation of emotional *pitch*, but it does not require the evaluation of *motive* (*niyya*). In some cases – e.g., when the injury is caused by a storm or by an accident – Smith does not need to (and actually cannot) discuss the motive judgment because the only judgment possible is the emotional pitch.

In any case, Smith's sympathy has started to attract the attention of economists (Rustichini, 2005; Sugden, 2002) and neuroscientists (Rizzolatti and Craighero, 2005). Neuroscientists have been able to locate the neurological seat of fellow-