

## Some Memories of João Claudio Todorov at Arizona State University, 1965-1969

*Algumas Memórias de João Claudio Todorov na Arizona State University, 1965-1969*

RICHARD L. SHULL<sup>1</sup>

<sup>1</sup>UNIVERSITY OF NORTH CAROLINA GREENSBORO, USA

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✉ [rlshull@uncg.edu](mailto:rlshull@uncg.edu)

DOI: [HTTP://DX.DOI.ORG/10.18542/REBAC.V18I1.12699](http://dx.doi.org/10.18542/REBAC.V18I1.12699)

João Claudio Todorov and I were graduate students together at Arizona State University (ASU) from the fall of 1965 until the spring of 1969, when we both earned our Ph. D. degrees. During that period ASU had an unusually strong behavioral program with an outstanding faculty including: Jack Michael, Thom Verhave, Stan Pliskoff, Aaron Brownstein, Joel Greenspoon, Fred Hegge, John Falk, Gil Sherman, and Fred Keller. Peter Killeen joined the faculty in the fall of 1968, when João Claudio and I were finishing our dissertations.

People at more established institutions, mostly on the east coast and in the mid-west, occasionally referred to the program at ASU, in a teasing way, as “Fort Skinner in the Desert.” But we students never referred to ASU that way, at least not in my experience. The ASU campus was huge, with beautiful modern buildings and gorgeous landscaping, located in a suburb of Phoenix, which was a diverse and thriving city. It just didn’t fit the image of a rustic fort in a wasteland. But perhaps the teasing nickname gave us a little extra incentive to prove that we could be as good as anyone.

Figure 1

*ASU Library, 1968; from the author.*



Prior to coming to ASU (i.e., during the 1964-65 academic year) I was a first-year graduate student at the University of Maryland, working with Stan Pliskoff on a program examining the behavioral effects of electrical brain stimulation as reinforcement. During that year Stan accepted a faculty position at ASU to begin in the fall of 1965. At his invitation I transferred to ASU to continue my work with him. João Claudio came to ASU from Brazil with the encouragement of Fred Keller. Fred and Gil Sherman initially developed their Personalized System of Instruction (PSI)

in Brazil, with João Claudio's help, and had recently come to ASU to continue this work. João Claudio was excited to join them.

Although João Claudio's primary assignment was with the PSI group, he quickly gravitated also to Pliskoff's lab where he became a leading member of our group. One room in the lab suite was set aside as a communal work area for us students. It contained all the equipment and supplies needed to operate and maintain a pigeon lab in the pre-computer days—such items as soldering irons, wire, spare relays and electromechanical timers, a clunky electromechanical calculator, and, importantly, a crusty old coffee pot. We all spent a lot of time sitting around a large table in the work room, drinking strong coffee and discussing research ideas, recent articles, and issues raised in classes. João Claudio was very sharp and insightful. He was a careful, sensitive listener. He also loved to stake out a position and defend it forcefully and cogently. I always enjoyed these lively discussions with him. He challenged me to think more clearly and deeply about whatever issue I was concerned with. In doing so, he made me a better scientist and teacher, for which I am extremely grateful.

Among the classes that we took was a required two-semester sequence taught by Joel Greenspoon. One semester the class was called something like "Human Learning;" the other semester it was called "Measurement." But those names were largely irrelevant to the content. The sequence actually was a year-long opportunity to observe Joel Greenspoon critically examine many of the terms and concepts that flourish in every-day speech and in psychology. It was a class in Greenspoon's brand of conceptual analysis. He was relentlessly critical, thoroughly uncompromising as a behaviorist, and intellectually rigorous. And he was enough of a performer to know when to throw in a slightly manic, highly entertaining rant. Each class session began, typically, with Greenspoon reading a passage from an article or book written by a prominent psychologist that highlighted a particular concept. He then spent the rest of the session encouraging, cajoling, and berating us in hopes that we would come to see how empty, circular, ambiguous, and useless the concept was for purposes of scientific analysis. Some of the students didn't much like the class; they found it too unstructured and abstract. But I loved it, and so, I believe, did João Claudio. A lot of my liveliest and most interesting discussions with him were related, directly or indirectly, to Greenspoonian critiques.

Greenspoon was unique in his teaching style and emphasis. But nearly everyone on the faculty stressed rigorous conceptual analysis and critical thinking in their classes and interactions with students. And those themes carried over to the interactions among the students. It was a wonderful intellectual environment.

Figure 2

*ASU lab, 1968; from the author.*



One of the research themes that we spent a lot of time discussing in the lab was the role of changeovers—behavioral transitions—in choice procedures (i.e., concurrent schedules). Some of us, with João Claudio among the leaders within our group, began to think that changeovers were central. In essence, the idea was that contingencies arranged explicitly or implicitly in choice procedures directly affect the rates of changing from one activity to another. The amounts of time spent engaged in the different activities, and the response counts in each, are, from this perspective, mostly by-products of the differential rates of changeovers. An alternative is to view time allocation as primary and changeovers as derivative. It may be that one can always interpret the results of any relevant set of data either in terms of differential changeover rates or in terms of relative time allocation—as two sides of the same coin, so to speak. But there might be advantages in the changeover-as-primary conceptualization. For one thing it retains the Skinnerian focus on the rate of a discrete response (rate of changeovers) as the basic behavioral measure.

In any case, João Claudio insightfully considered the implications of the changeover conception and designed an elegant set of experiments for his doctoral dissertation that demonstrated the power and usefulness of that focus. In brief, he arranged punishment for changeovers in a conventional two-alternative choice procedure. For each condition, the intensity of punishment was the same for changeovers to and changeovers from a particular activity; the intensity of punishment for these changeovers was varied between conditions. As would be expected, the more intense the punishment, the greater the suppression of changeover rates. The important result, however, was that even though the intensity of punishment was the same for both types of changeover, the suppressive effect was less if the changeovers were to the more highly reinforcing activity than if they were to the less reinforcing activity. Because of this differential effect of punishment intensity on changeovers, relative time spent engaged in the more reinforcing of the two activities was a continuous increasing function of punishment intensity. At a particular point along this function, relative time matched relative reinforcement. But such matching was only one of many possible outcomes. The paper that resulted from this dissertation project (Todorov, 1971) is a gem. It has not, in my view, received nearly the attention that it deserves. It is a wonderful demonstration of how useful the changeover conceptualization can be for understanding the results from choice procedures.

After getting our degrees, I moved to Greensboro, NC, and João Claudio returned to Brazil. Over the years since then, we would see each other occasionally at professional meetings; and we were able to get together a few times when João Claudio visited Fred and Frances Keller in Chapel Hill, NC, which is about an hour's drive from Greensboro. I always enjoyed seeing him, and I always learned something useful. I, of course, followed his remarkable career and knew of many of his exceptional accomplishments in research, teaching, and service to education and behavior analysis. He had a profound, positive effect on our field. I feel fortunate to have known him and proud to have worked with him.

### **Declaration of Conflict of Interest**

The author declares that there is no conflict of interest regarding the publication of this article.

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Invited paper  
Submitted on: 01/10/2021