

The Reasoned Action Model: Some Next Steps

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Overview

Will describe three areas in which the Reasoned Action Model (RAM) can profitably be expanded and explored, without focusing on the “fourth variable” approach

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An idiographic RAM

A split-second RAM

A multi-option RAM

I will frame and raise issues, not solve them

An Idiographic RAM

The Nomothetic Nature of Social Science Research

Most of our theoretical expressions are nomothetic in character, i.e., they focus on statements *across individuals*

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“People with more positive intentions are more likely to perform the behavior than people with less positive intentions”

“People who endorse Belief X tend to have more positive attitudes towards performing the behavior than people who do not endorse Belief X”

An Idiographic Science

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e.g., widespread use of computers will lead to increased use of web-based, tailored interventions

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Tailoring and individualized interventions require idiographic approaches where we make statements about individuals, not just groups of individuals

An Idiographic Science

Instead of saying “*For this group of individuals, Belief X is the most important one to focus on*”

We want to say “*For this individual, Belief X is the most important one to focus on*”

Instead of saying “*For this group of individuals, attitudes are the most important determinant of intention*”

We want to say “*For this individual, normative pressure is the most important factor to focus on*”

An Idiographic RAM

$$\mathbf{BI} = \alpha + \beta_1 \mathbf{Aact} + \beta_2 \mathbf{PN} + \beta_3 \mathbf{PBC} + \varepsilon$$

When we regress intentions onto the RAM components, we are essentially using a nomothetic perspective

An Idiographic RAM

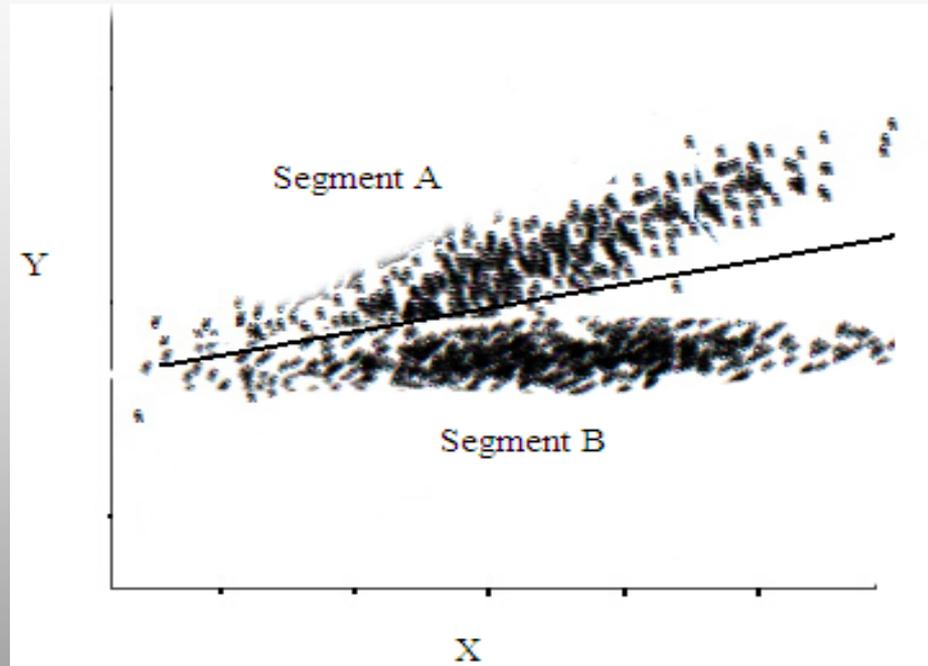
$$\mathbf{BI} = \alpha + \beta_1 \mathbf{Aact} + \beta_2 \mathbf{PN} + \beta_3 \mathbf{PBC} + \varepsilon$$

When we regress intentions onto the RAM components, we are essentially using a nomothetic perspective

We assume that people are drawn from a single population with common linear coefficients

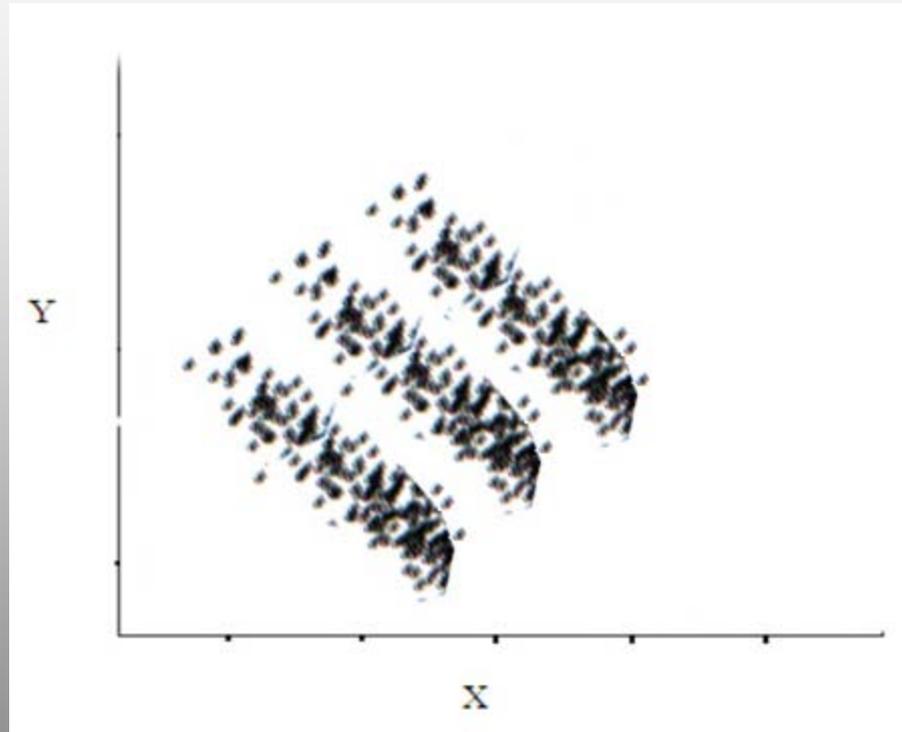
But, in reality, we probably are mixing heterogeneous population segments with different coefficients characterizing the segments

An Idiographic RAM



With “mixed” populations, the overall regression analysis can characterize neither segment very well and lead to sub-optimal inferences and intervention strategies

Another Example of Aggregation Bias



Yet Another Example of Aggregation Bias

An organization is asked to rectify past differential hiring rates (HR) for men versus women in two departments. The new hiring rates after remediation look like this:

Dept A: 50 men apply and 10 are hired

80 women apply and 20 are hired

Male HR = 20% Female HR = 25%

Dept B: 80 men apply and 60 are hired

50 women apply and 40 are hired

Male HR = 75% Female HR = 80%

Pooled: 130 men and 130 women applied for jobs

70 men and 60 women were hired

The hiring rate for men is higher than for women

Three Challenges for an Idiographic RAM

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Challenge 1: An idiographic analysis of the intention-behavior relationship: How do we determine for a single individual if his or her intention will translate into behavioral performance?

Challenge 2: An idiographic analysis of the importance of attitudes, norms, and perceived control: How do we determine for a single individual which RAM component(s) (Aact, SN, PBC) are important in influencing the individual's intention?

Challenge 3: An idiographic analysis of beliefs to target to change attitudes, norms, and/or perceived control: How do we determine for a single individual which belief(s) are most important in influencing his/her Aact, SN or PBC?

Two Approaches to the Challenges

Approach 1: We adapt nomothetic methods for idiographic purposes

Approach 2: We use truly idiographic approaches

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Example to illustrate first approach: How do we determine *for a single individual* which RAM components (attitudes, norms, perceived control) are important in influencing the individual's intention?

A Nomothetic Approach to an Idiographic Science

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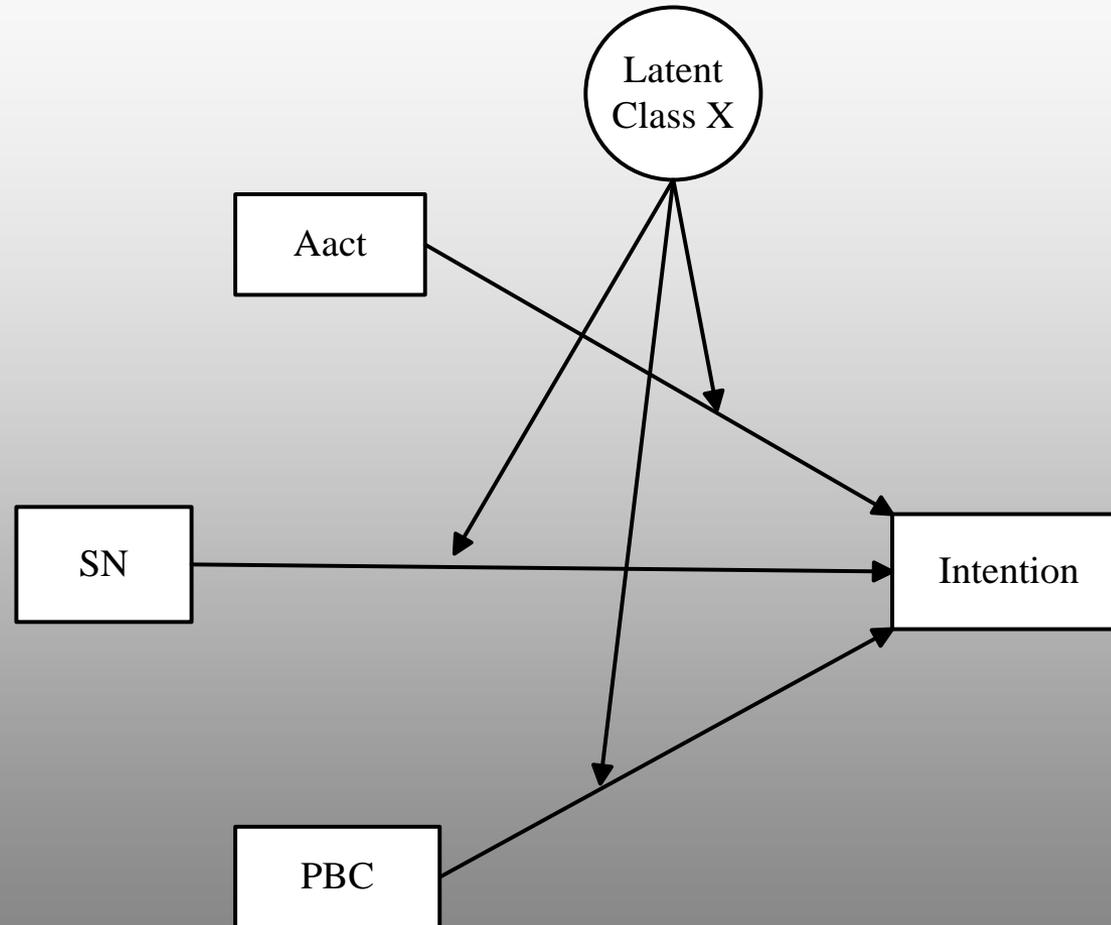
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Assumes people have insights into factors that impact their choices

Many areas of research question this assumption

A Nomothetic Approach to an Idiographic Science



Nomothetic approach to an idiographic RAM: We first apply SEM based mixture modeling to the RAM

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Mixture Model for Heavy Episodic Drinking

A four class model fits data best (entries are linear coefficients)

	<u>Aact</u>	<u>SN</u>	<u>DN</u>	<u>PBC</u>
Segment 1 (42%):	.33	.02	.01	-.01
Segment 2 (17%):	.10	.29	.30	.01
Segment 3 (21%):	.30	.29	.05	.04
Segment 4 (20%):	.48	.09	.25	-.03

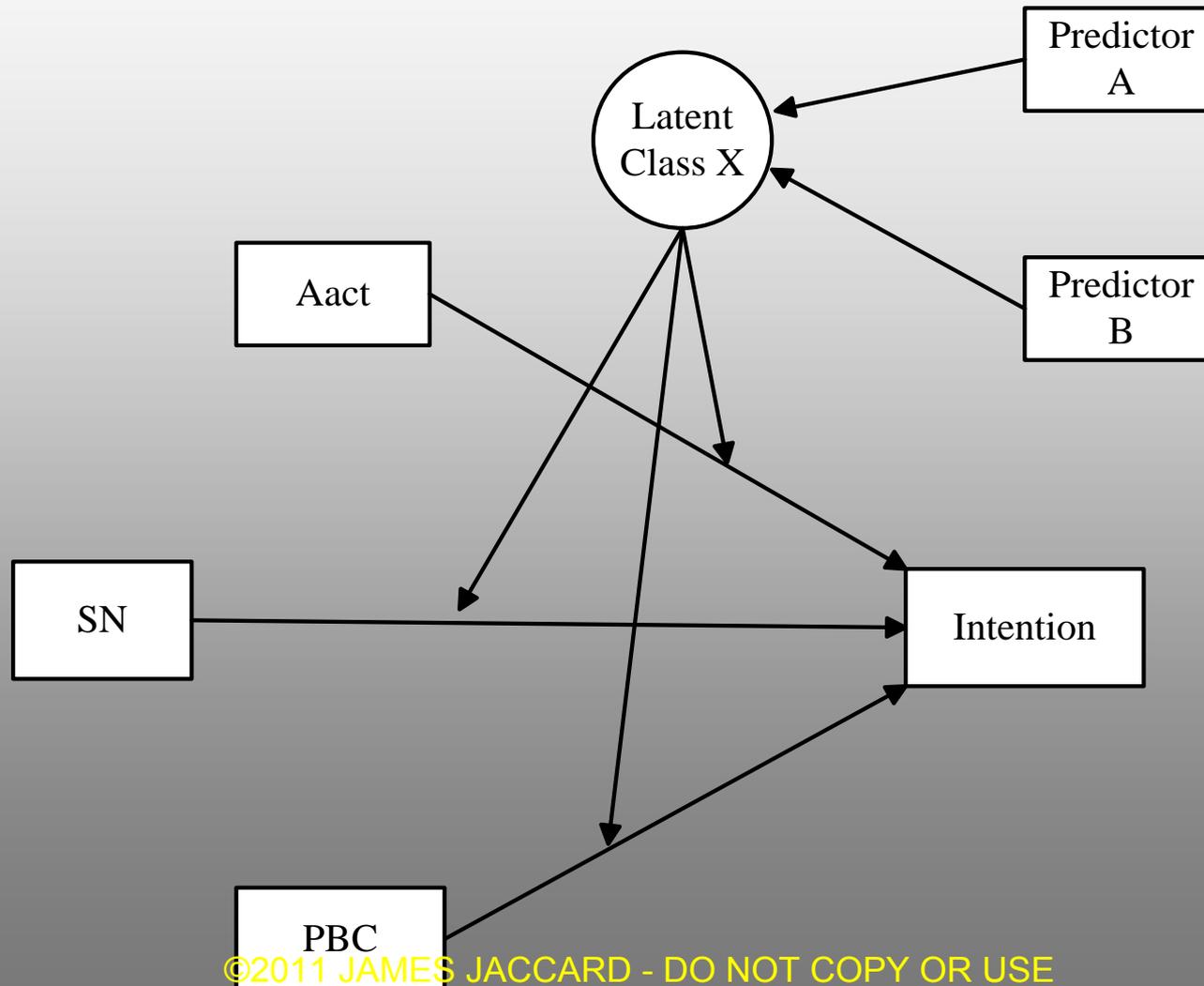
Nomothetic Approach to an Idiographic Science

Step 2: Use methods from prediction science as adapted to mixture modeling to develop prediction equations that place people into the latent class categories or segment types

$$LC_x = \alpha_1 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3$$

(Often do so simultaneously with the identification of segments vis-à-vis the inclusion of active covariates in the mixture model)

A Nomothetic Approach to an Idiographic Science



Nomothetic Approach to an Idiographic Science

Step 3: At baseline of the intervention, assess X_1 through X_3 and use the prediction equations derived from prior nomothetic analyses to place the individual into his/her respective class

Step 4: Deliver “tailored” intervention based on which segment a person is classified in (or, alternatively, use an EB approach)

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There have been few attempts to use this 4 step approach with RAM. I am exploring the approach for adolescent sexual behavior and binge drinking in college youth

Approach 2: A True Idiographic Approach

Another strategy is to use some experimental task or importance ratings provided by an individual at baseline to make inferences about causal importance of target variable

Example: How do we determine for a single individual which behavioral beliefs are important in determining his or her attitudes or choice/intentions?

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A review of the literature outside the context of RAM reveals a multitude of approaches to doing this, each of which has a substantial scientific following

Ways of Determining Belief Importance

Importance ratings

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These subjective probabilities are often related and the relationships between them can be described using the laws of mathematical probability theory

Ways of Determining Belief Importance

Wyer's syllogistic model relating proposition A (a premise: "Smoking raises your blood pressure") to proposition B (a conclusion: "Smoking is bad for my health")

Target probability equation: $P_B = P_A P_{B|A} + (1-P_A) P_{B|A'}$

P_A : Smoking would raise my blood pressure

P_B : Smoking is bad for my health

$P_{B|A}$: Assume that smoking does, in fact, raise your blood pressure; taking this and everything else you know into account, how likely is it that smoking is bad for your health

$P_{B|A'}$: Assume that smoking does not raise your blood pressure; taking this and everything else you know into account, how likely is it that smoking is bad for your health

Ways of Assessing Belief Importance

Derivation of importance index of premise for conclusion

$$P_B = P_A P_{B|A} + (1-P_A) P_{B|A'}$$

$$\Delta P_B = \Delta P_A (P_{B|A} - P_{B|A'})$$

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Jaccard's adaptation to belief-intention relationship

$$P_I = P_A P_{I|A} + (1-P_A) P_{I|A'}$$

$$\Delta P_I = \Delta P_A (P_{I|A} - P_{I|A'})$$

$$\text{Importance} = |P_{I|A} - P_{I|A'}|$$

Ways of Assessing Belief Importance

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Cue utilization paradigm: Brunswik lens model

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Information search – frequency or order of search

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Thurstone paired comparison methodology

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Conducted four studies exploring this, using subsets of 12 different methods with a variety of topics and a variety of subject populations

Results of Convergence Analysis Between Measures

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We need to get to the bottom of what is going on with these different importance indices

An Alternative Approach Consistent with the RAM

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Importance is captured through constructs of salience and extremity of beliefs and belief evaluations; to quote Marty, “BAH!”

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- Measure b_i and e_i for the elicited beliefs**
- Tailor the intervention based on the elicited beliefs and the assessments of b_i and e_i**

An Alternative Approach Consistent with the RAM

Donating blood at the blood drive next week would....

	b	e	(b)(e)
be inconvenient	.6	-1	-.6
take away from my studies	.9	-2	-1.8
help people who need blood	.9	+2	1.8
be painful	.7	-2	-1.4

Issue with Focusing on Individually Elicited Beliefs

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In studies I have conducted where I repeat elicitations on the same person with a two week interval, I find about 50% of behavioral beliefs mentioned at time 1 are not mentioned at time 2

Issue with Focusing on Individually Elicited Beliefs

A Possible Solution

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I find that first few beliefs elicited at one point in time tend to be elicited at a later point in time. Later elicited beliefs are the ones that are more transitory

Conclusions for an Idiographic RAM

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If we develop methods for determining causal contributions of RAM components on a per individual basis, then....

We will be able to better predict BI from model components as well as RAM components from beliefs

We will be able to better design tailored interventions

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We will be able to better design tailored interventions

We need to “think anew” to make this work as our thinking is nomothetically ingrained

A Split Second RAM

The Dynamics of Reasoned Action: A Closer Look

Traditionally, we measure RAM components in a survey and then use measures to predict behavior that occurs *in the future*

We essentially ask people in a context-sanitized questionnaire if they intend, for example, to use condoms the next time they have sex

But it can be difficult for the person to anticipate and take into account all the parameters of the context that will be operating when the “split second” decision is made at a later time to go ahead and have unsafe sex, despite prior intent

A Split-Second RAM

Many behaviors are the product of split-second, last moment decisions, even those that appear to be stable and thoughtful

- Having sex with someone you meet at a party**
- Using or not using a condom**
- Obtaining an HIV test (NYC study)**

A Split-Second RAM

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A Split-Second RAM

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Cognitive appraisal system

Affective appraisal system

Based on our cognitive interpretations of a situation and our affective appraisals, different facets of RAM become salient and enter working memory

It could be a behavioral belief, a normative belief, a prior Aact, etc.

We then make split-second decisions based on what becomes salient and resides in working memory

A Split-Second RAM

Two types of cognitions can become activated

- **Stable, generalized cognitions (e.g. “If I have unprotected sex, I could get an STD”; “My mother really would not approve of this!”)**
- **Situation-specific cognitions (e.g., “Bob is pretty cool and I would not mind ‘getting him’ as a boyfriend”)**

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Practical constraints limit our ability to measure RAM components and beliefs in specific situations, but we can recognize that split-second, situation-specific dynamics operate and then take this into account as we design interventions

A Split-Second RAM

Intervention strategy I use (based on self regulation models)

- Identify to person high risk situations likely to encounter**
- Alert them to kinds of thoughts and feelings will have**
- Tell them to cognitively affirm one's initial intention**
- Develop an action plan (several) to deal with the situation (example with Pedro)**

A Split-Second RAM

A second focus: Ensure that the “right” cognitions become salient and impact behavior in a specific situation

Train individuals so that cues in high risk situation strongly “prime” healthy beliefs from RAM

Conclusions for a Split-Second RAM

For many behavioral criteria, we apply the RAM in a “sanitized” questionnaire that is devoid of contextual details

Behaviors in many situations are “split-second” in character and are based on the RAM components that become salient in working memory at a given instant

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Traditionally our mindset is on changing beliefs. We instead should recognize the dynamic nature of working memory and the movement of RAM constructs in and out of it.

Conclusions for a Split-Second RAM

It is not always about change...it can also be about what becomes salient in a given context and manipulating what enters working memory in high risk situations

Conclusions for a Split-Second RAM

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We can improve our interventions based on the RAM by...

- Identifying for people and preparing them for high risk circumstances/situations they will encounter**
- Building associative links between features of those situations and components of RAM so that desirable RAM components enter working memory “on cue”**

A Multi-Option RAM

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Typical focus of RAM is on a specific behavior, i.e., a single behavioral option (e.g., driving drunk). RAM recognizes the importance of choice options, but downplays their role

- Because of a “mirror image” effect (e.g., quitting smoking)**

A Multi-Option RAM

We know, however, that considering options in a choice set can be important (e.g., military enlistments)

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My research on contraceptive choice, where two people with the same attitude toward using a method (Method A) can exhibit different behavior purely based on Aact:

<u>Person</u>	<u>Method A</u>	<u>Method B</u>	<u>Method C</u>	<u>Choice</u>
1	+1	+2	-2	B
2	+1	-2	-3	A

(Numbers are attitudes toward using each method)

A Multi-Option RAM

Classic decision theory predicts behavior based on *within-individual* attitude distributions across options – e.g., you choose the option that you have the most favorable attitude towards

This stands in contrast to traditional nomothetic regression analyses that regress intentions onto attitudes across individuals

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In studies I have done on contraceptive choice, I find within-individual (idiographic) choice functions predict contraceptive behavior better than across-individual nomothetic based regression models

A Multi-Option RAM

We can measure the RAM components for each option in a behavioral choice set (Aact, SN, PBC)

We need to figure out how to adapt RAM to use the component measures for each option in a within-individual, across-option capacity

(e.g., examine the distribution of Aacts across the options for an individual, the distribution of SNs across options for the individual, and the distribution of PBCs across options for the individual and then specify how an individual's choice is a function of these)

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Entering all predictors into one large regression analysis does not capture choice functions that dominate decision science

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- We can target other options in the choice set to manipulate behavior toward the target option (drunk driving example)**

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- We can target other options in the choice set to manipulate behavior toward the target option (drunk driving example)**
- The possibility of manipulating behavior by adding options to the choice set (binge drinking example)**
- The need to take into the account the “costs of switching” to another option (bank example)**

Conclusions and Summary

The RAM is a powerful framework and we are indebted to Marty for his tremendous contributions with it

We can build on and further Marty's legacy by taking his and Icek's theory "to the next level," making it that much more powerful. I humbly suggest three directions for doing so

Develop an idiographic RAM

Develop a "split-second" RAM

Develop a multi-option RAM

Stop Talking!