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ABSTRACT

Most devices designed to monitor the part of a visual display on which a subject's eyes are focused are cumbersome and expensive. It is proposed that areas of the display screen designated by the production unit as important to some decision be isolated on one television monitor and the remaining area of the screen be isolated on a second monitor. Instead of recording "natural" attention patterns and then deciding if they conform to production-relevant configurations, this method begins with the production-relevant screen areas and presents the subject with a free choice situations. The method has the virtue of being both simple and inexpensive. (JY)

Keith W. Mielke
Children's Television Workshop
July 27, 1972

RECORDING THE AMOUNT OF ATTENTION GIVEN TO VARIOUS PORTIONS OF THE SCREEN

The problem to be solved comes from production: where do kids look on the screen under various conditions? Where should important visuals such as supered words be placed for maximum attention? In a complex visual, what assurances can be given that key elements of the visual are in fact noticed?

The major stream of thought on solutions to this research problem is in various means of recording eye movements on a single screen, pinpointing the pattern and duration of visual scanning. The various ideas proposed along these lines all utilize some device attached to the subject (lights, magnets, directional radio transmitters, helmets, glasses, masks, binoculars, periscopes, mirrors, cameras, and the like). The device itself may be unacceptably cumbersome or unnatural in addition to being sensitive and expensive. There is also a question of how much precision in eye movement patterns can actually be utilized by production: for example, is a precise pinpoint of attention really needed or would a general area of the screen suffice?

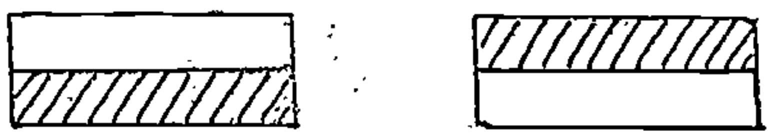
An alternative approach to the problem is suggested here for your consideration. The fundamental idea is this: starting with the area(s) of the screen designated by production as important to some decision, that area of the screen is isolated on one monitor and the remaining area of the screen is isolated on a second monitor. Collectively, the two monitors present the entire stimulus array, thus avoiding the problem of the subject not being able to know what he is missing (the major problem encountered by simply blacking out a portion of a single monitor). The two monitors are then placed in such a position that attention to one or the other can be detected easily through observation of gross bodily movements.

Instead of recording "natural" attention patterns and then deciding after the fact if they conform to production-relevant configurations, this method would begin with production-relevant screen areas, presenting the separated stimulus array to the subject in a free choice situation. The implication is that data interpretation would be greatly simplified because the relevant categories have been set by production before observation starts; thus, simple frequency counts of attention given to the relevant or irrelevant stimulus will, by definition, tell the producer what he wants to know.

Pilot testing of this idea is extremely inexpensive, requiring only paper templates to cover portions of the screen. If such pretesting indicates some value for the method, more sophisticated methods for splitting the stimulus should be employed, such as synchronized electronically generated blackout patterns tailored to a specific program bit.

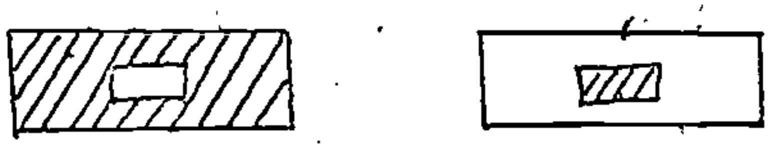
Initial template patterns could be as follows:

I horizontal halves



II vertical halves

III center vs. periphery



IV vertical thirds

I think that the needs of production for attention pattern data could be restricted or reduced to less than a dozen template patterns. If so, a small number of blackout patterns could be called upon to supply all the templates needed for any visual configuration. This means that a sequential visual content analysis could specify on a moment-by-moment basis the appropriate template pattern. These patterns could be electronically generated on a separate but synchronized videotape, allowing a complete show to be played with prespecified template patterns appearing automatically on the screen.

For primitive pretesting, the following Latin Square type design seems appropriate:

TEMPLATE PATTERN

SUBJECT OR GROUP	I	II	III	IV
1	bit a	bit b	bit c	bit d
2	b	c	d	a
3	c	d	a	b
4	d	a	b	c

The design above offers the economy of repeated measures with subjects, plus exhaustive template testing for each bit.

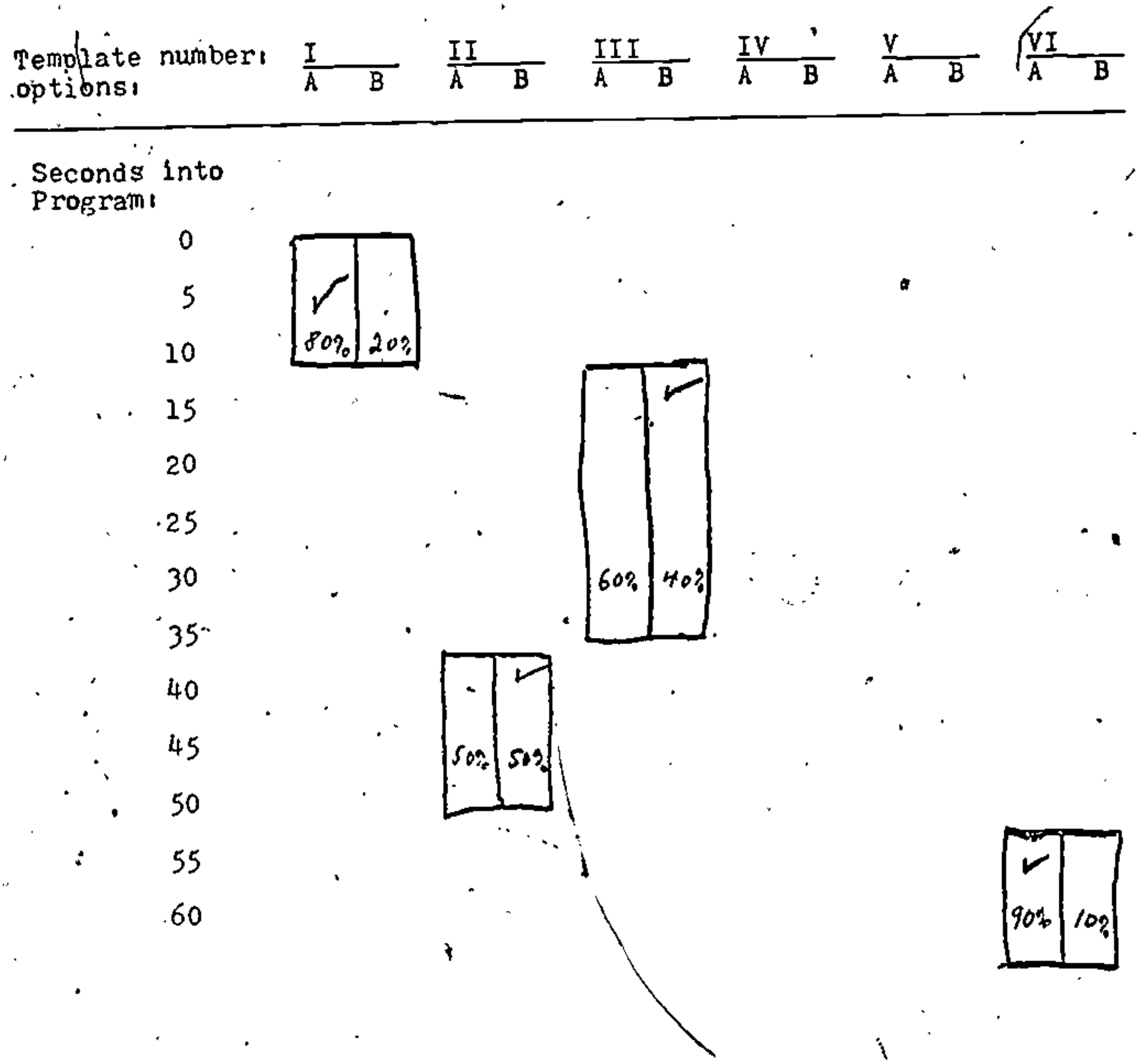
Data presentation for primitive pretesting could take the following form:

	top half	bottom half	left half	right half	center	periphery	ETC.
bit a	__%	__%	__%	__%	__%	__%	
bit b	__%	__%	__%	__%	__%	__%	
bit c	__%	__%	__%	__%	__%	__%	
bit d	__%	__%	__%	__%	__%	__%	

Examination of the row data for bit a, for example, would indicate which preference pattern was strongest for that bit; i.e., which template deviated farthest from a 50-50 split.

Examination of the column data would tell which bit was strongest for a particular attention pattern, such as left half dominating right half.

These exploratory data should be useful in determining the pool of template patterns to be used in electronically generated templates which would be automatically presented. For the more sophisticated method, data presentation could take the following form:



HOW TO READ THIS TABLE:

Six templates (I through VI) are used in this example, each using two monitors (option A or B) to present the separated stimulus. For the first ten seconds of the show, the producers have decided, on the basis of a sequential visual content analysis, that template I is needed to tell them the information they need to know. The relevant or critical part of the stimulus is to be located on monitor A, hence the checkmark designating the previously decided relevant stimulus portion. The dummy data indicate that, of all the attention available during the first ten seconds, 80% of it was given to monitor A, hence that was an effective visual treatment. Seconds 10 through 35 require a different template; the data show that this was a less effective visual treatment.